VSB – TECHNICAL UNIVERSITY OF OSTRAVA
FACULTY OF ECONOMICS

DEPARTMENT OF FINANCE

Finanční analýza společnosti Lego
Financial Analysis of Lego Company

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Ostrava, 2017

VŠB - Technical University of Ostrava
Faculty of Economics
Department of Finance

Bachelor Thesis Assignment

Student:	**Nan Wang**
Study Programme:	B6202 Economic Policy and Administration
Study Branch:	6202R010 Finance
Title:	Financial Analysis of Lego Company Finanční analýza společnosti Lego
The thesis language:	English

Description:

1. Introduction
2. Description of the Financial Analysis Methodology
3. Financial Characteristics of Lego Company
4. Financial Analysis of Lego Company
5. Conclusion

Bibliography
List of Abbreviations
Declaration of Utilisation of Results from the Bachelor Thesis
List of Annexes
Annexes

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Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on the web sites of the faculty.

Supervisor: **Ing. Josef Novotný, Ph.D.**

Date of issue: 18.11.2016
Date of submission: 05.05.2017

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The Declaration

Herewith I declare that I elaborated the entire thesis, including all annexes, independently.

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Contents:

1 Introduction

Financial analysis is a key step in both manager and investor's decision-making process. In order to justify the investment for a reasonable rate of return, the investors have to conduct thorough investigations (or analysis) into the financial situation of the target company with a number of analytical methods or models. As for the management of a company, in order to have in-depth understanding of the company and making wise decision for its future development, it is also a great necessity to make such financial analysis.

The goal of this thesis is to give a comprehensive assessment of the financial and financial conditions of the Lego group, and hopefully, provides some insights for those that are potentially interested in investing in this company.

This thesis consists of five chapters. The first chapter is about a brief overall introduction. The second chapter is description of the financial analysis methodology. The third chapter is financial characteristics of Lego company. The fourth chapter is financial analysis of the Lego company. And the final chapter is conclusion.

In chapter 2, there will be detailed description about three major financial analysis methodologies. There are, financial statement analysis, common-size analysis and financial ratio analysis. Financial statements refer to balance sheet, income statement and cash flow statement. These statements play initial role in providing data base for following financial analysis. Common-size analysis consists of vertical common-size analysis and horizontal common-size analysis. Combining these two methods, one can analyze data from different perspectives, thus get a more complete view. Financial ratio analysis consists of five major kinds of ratios, including profitability ratios, liquidity ratios, solvency ratios, activity ratios and DuPont analysis.

In chapter 3, you can get basic information about the Lego Group, including its history, characteristics, main competitors and so on. As a toy industry giant, the Lego Group has attracted a lot of attention. In recent years, it has become a phenomenal trend for the electronic entertainment products to rapidly replace the traditional toys in market places. Under this circumstance, though stuck in a dilemma in the early of the 21st century, the Lego Group now became a leading enterprise and is poised for further growth. Thus, it is quite attractive to find out the financial condition of the Lego company.

In chapter 4, methodologies mentioned in the previous chapters will combined with the reality of Lego group. The data that this chapter makes use of in analysis are obtained

from the company's annual reports made public during 2011 to 2015, which consists of three kinds of statement: balance sheet, income statement and cash flow statement.

A conclusion of the Lego Group's current condition will be stated in the last chapter along with several recommendations for the company's further improvements.

2 Description of the financial analysis methodology

The main objective of this chapter is to introduce several theoretical method of financial analysis. The description will be divided into three major parts.

At the very beginning, I would like to explain financial statement, which involves the comparison of status of one company over different periods of time or different companies' information in the same time period. Financial statement analysis procedure includes three main statements namely balance sheet， income statement and cash flow statement.

The remaining part of the discussion will provide information on two types of financial analysis methods.

In the second component, I would introduce the first type, known as the common-size analysis. The two main methods of analysis in this component include the horizontal common-size analysis and the vertical common-size analysis. As for the last component of this chapter, I would like to introduce the second type of financial analysis methods in detail, which is called financial ratio analysis.

In general, the fundamental function of financial analysis is to measure a company's current financial situation by dealing with some basic data， like financial statement. Used as a tool by both lenders and shareholders of the entity， the financial analysis plays an important role in assessing and developing the company itself. Details on financial analysis are discussed in latter sections.

2.1 Financial Statements

According to the definition, financial statements are a collection of reports about a company's financial conditions, performance, position in reality and etc. It provides basic data for the rest steps of financial statement analysis. One analyst can integrate information, evaluate the company and make economic decisions rely on financial statements present in target company's annual reports.

This will be followed by descriptions of standard contents of a set of financial statements, which are: balance sheet, income statement and statement of cash flows.

2.1.1 Balance sheet

Also known as the statement of financial position or statement of financial condition, the balance sheet summarizes a company's assets, equity and liabilities as of the report date, instead of which covers a span of time.

The basic equation would be computed as:

$$Assets = Liabilities + Equity \ . \tag{2.1}$$

Tab. 2.1: Balance sheet of company

Balance sheet	
Assets	**Equity and Liabilities**
Current assets:	**Current liabilities:**
Cash and cash equivalent	Commercial paper
Receivables	Accounts payable
Inventories	Accrued liabilities
Prepaid expenses and other	Accrued income taxes
Total current assets	Total current liabilities
Property and equipment, at cost:	**Long-term debt:**
Land	Long-term obligations under capital lease
Buildings and improvements	Deferred income taxes and other
Fixtures and equipment	Minority interest
Total property and equipment, at cost	**Shareholders' equity:**
Less accumulated depreciation	Preferred stock
Property under capital lease:	Common stock
Property under capital lease	Capital in excess of par value
Less accumulated amortization	Other accumulated comprehensive income
Goodwill	Retained earnings
Other assets and deferred charges	Total shareholders' equity
Total assets	**Total equity and liabilities**

Source: International Financial Statement Analysis

Structure of balance sheet

It can be seen from the template above that a balance sheet, literally, is a sheet shows both sides of an equation – assets on the left and the sum of equity liabilities on the right – must be equilibratory. We can also say that it contains both a debit entry and a credit entry for almost everything.

Content of balance sheet

Through the balance sheet, one can acquaint with the total amount of assets along with its structure at a certain date, be aware of the resources owned and controlled by the enterprise and their distribution, that is, the exact amount of resources distributed in current assets, long-term assets investments (also known as fixed assets) and other assets. Besides, the balance sheet can also present the total amount of liabilities and its structure, indicating how much assets or services the future business needs to pay off the debts as well as the time of payment, to be specific, referring to how many the current liabilities and long-term liabilities are, and how many long-term liabilities should be repaid by the current liquidity, and so on. Moreover, it can reflect the equity, enable to determine the capital preservation or value-added situation.

Function of balance sheet

As for a key function of balance sheet, it provides basic information for financial analysis. Users can calculate solvency and liquidity ratios to evaluate the company's state of financial health, and then make economic decisions according to it.

2.1.2 Income statement

The income statement, also known as 'profit and loss statement', or 'statement of revenue and expense', is one of three major financial statements that presents an entity's financial performance over a specific period of time.

The equation of income statement:

$$Revenue - cost = net\ income\ . \tag{2.2}$$

It is quite obvious that an income statement consists of revenues, costs (expenses) as well as the net income (or loss). As a result, the net income can be calculated after all the revenues and expenses have been taken into account.

The items in an income statement can be divided into two parts, the operating section and non-operating section. The operating section is about revenue and expense that are directly related to a company's operating activities, like cash inflows and outflows caused by the primary activities of buying, producing and selling. And the non-operating section includes

revenue and expense that are not directly related to company's daily operations, for instance, items that are neither usual nor frequent, like interest and tax expenses.

There are two commonly used formats of income statement, one of them is called Single-Step Income Statement, and the other one is called Multiple-Step Income Statement. This will be followed by a detailed description.

The single-step format uses only subtraction to arrive at net income, and the sample shown as below:

Tab. 2.2: Income statement of company

Revenue
Net sales
Other income, net
Costs and expenses
Cost of sales
Operating, selling, general, and administrative expenses
Operating income
interest
Debt
Capital lease
Interest income
Interest, net
Income from continuing operations before income taxes and minority interest
Provision for income taxes
current
Deferred
Total
Net income

Source: International Financial Statement Analysis

By contrast, the multiple-step income statement shows its advantages in the following: 1) Clearer in stating the volume of gross profit; 2) better presentation of the subtotal operating income, which manifests the profit earned from the company's primary activities; and 3) providing a clear breakdown of net amount for each item on the income statement, making it easy for others to assess the company's performance.

2.1.3 Cash flow statement

The cash flow statement, as the last statement mentioned in this section, refers to a financial report that reflects the volume of cash and cash equivalents flowing in and out a company during a certain accounting period (generally one month, one quarter, mainly one year). It provides readers with information about how the company operates its business, how it collects money and where the money been spent on. Whereas, it does not include the information about the future cash flow (no matter outflow or inflow), which already been logged as a credit.

The cash flow statement is primarily intended to reflect the impact of each item in the balance sheet on cash flows and is categorized into three sections of operation, investment and financing, depending on their usage. The cash flow statement can be used to analyse whether a company or institution has enough cash to cover expenses in a short term. The Tab. 2.3 can easily illustrate things stated above.

Tab. 2.3: Cash flow statement of company

Cash flow from operating activities:
Income from continuing operations
Depreciation and amortization
Deferred income taxes
Changes in certain assets and liabilities, net of effects of acquisitions
Cash flows from investing activities:
Payments for property and equipment
Sale of land
Cash flow from financing activities:
Change in commercial paper
Payment of long-term debt
Purchase of stock
Net change in cash and cash equivalent
Cash at beginning of year
Cash at end of year
Supplemental disclosure of cash flow information

Source: International Financial Statement Analysis

For the first section, cash flows from operating activities refers to the amount of cash inflows and outflows of all trading activities and events other than corporate investment activities and financing activities. Including cash received from sales of goods, provision of

labour services, operating leases and other activities; cash paid for goods purchased, services received, advertising, taxes and so on.

As to the second section, cash flow from investment activities refers to the cash inflows and outflows of the enterprises' long-term assets and the investment activities about them. Including cash received from activities such as recovering investment, obtaining investment income and disposing of long-term assets; cash paid for acquisition of fixed assets, construction in progress, intangible assets and other long-term assets and foreign investment.

The last section, cash flow from financing activities, is about the amount of cash inflows and outflows caused by investment and borrowed funds. Including cash received from investment, borrowing, issuance of bonds, cash paid for activities such as repayment of loans, repayment of bonds, payment of interest and distribution of dividends, etc.

The primary function of cash flow statement is to provide readers with relevant information in assessing a company's liquidity, quality of earnings and solvency.

2.2 Common-size analysis

Common-size analysis mainly analyses data and their variation through time from financial statements. The fundamental purpose of common-size analysis is to identify the trends and changes of a company's activity. I would like to introduce two basic types of common-size analysis in this chapter, which are vertical common-size analysis and horizontal common-size analysis.

2.2.1 Vertical Common-size Analysis

Vertical common-size analysis focus on the changes in each item in percentage of selected benchmarks. This special kind of common-size analysis can be contacted of either balance sheet or income statement.

As for relating to a balance sheet, the sum of assets and debts (equity and liability) are used as benchmarks. Total individual assets are shown in percentage of total assets, and the current liabilities, long-term liabilities and so on are shown in percentage of total liabilities.

As for relating to an income statement, the benchmark is the total sales revenue, and all other components of income statement, for example selling cost, operating cost, etc., are shown as percentages of sales revenue.

In a vertical analysis, the formula of calculating the percentages is as follows:

$$\%E = \frac{amout\ of\ individual\ item}{total\ amount}. \quad (2.3)$$

2.2.2 Horizontal Common-size Analysis

This kind of common-size analysis, different form the previous one, is focus on the data and their changes through time with respect to a given period as benchmark. We can also say that the horizontal analysis shown the data as a percentage of amount from a selected year in the past.

For instance, choose the year of 2010 as a as year, the data from financial reports of a company at 2010 as benchmark. Thus, the data reported at 31/12/2016, 31/12/2015, and 31/12/2014 will be expressed as a percentage of the amount at 31/12/2010.

The formula can be expressed as follows:

$$\Delta E = amount\ in\ comaprison\ year - amount\ in\ base\ year \quad (2.4)$$

$$\%\Delta E = \frac{\Delta E}{amount\ in\ base\ year} \cdot 100. \quad (2.5)$$

The horizontal analysis can be also used for analysing both balance sheet and income statement.

2.3 Financial Ratio Analysis

When it comes to analysing a company's performance, computing and collating of financial ratios is one of the most important elements of the analysis process.

Just think about the massive amount of data that would be presented by the financial statements and what a mess it will be if you are not aware of how to deal with these data. In this regard, several kinds of ratios and their ways to computes will be explained in this chapter. Among the dozens of financial ratios, it may be arranged under five heads: Profitability ratios, liquidity ratios, solvency ratios, activity ratios and DuPont analysis. In the rest parts of this chapter, each kind of ratios will be introduced in turn.

Ratio Analysis is the most basic and most common method for interpreting corporate financial statements. However, in fact the number itself is not the key, that is to say some of the indicators is not the higher the better or the lower the better, but should be combined with the company's operating conditions, find a meaningful benchmark for making analysis and

comparison, find the causes behind the data, or a series of internal data and facts associated with the combination of view, in order to get effective results from analysis.

2.3.1 Profitability Ratios

Profitability ratio is one of major ratios of financial ratio analysis, which measures the ability of enterprises to earn profits. The ratio can indicate the ability of a company to generate profit from invested capital during certain periods of time. Both investors and debtors are very concerned about this kind of ratio.

Profitability ratio contains a wide range of content. The ratio includes some profit indicators that measure the profitability of the firm, as well as the sum of capital and investment efficiency. In analyzing the profitability, we should exclude factors such as special items, non-normal items, securities trading, business items that have been or will be stopped, major events such as major accidents or legal changes, accounting policies and the cumulative impact of changes in the financial system. In addition, either way, one thing should be noted is that the changes in these indicators are easy to find, however to discover the reasons of their changes are more challenging.

The four ratios fallen under this category are operating profit margin (OPM), net profit margin (NPM), return on total assets(ROA) and return on total equity (ROE).

Operating profit margin (OPM)

The operating profit margin, also called return on sales (ROS), represents the profits earned by the company after all variable production expenses. The results are expressed as a percentage of sales. Moreover, the ratio shows the company's efficiency in utilizing and managing everyday operating costs, which means the percentage of return from daily operating activities.

To calculate OPM, the formula is as follows:

$$OPM = \frac{operating\ profit}{revenue}. \tag{2.6}$$

As we know, the operating profit equals to the earnings before interest and taxes (EBIT), thus the operating profit in the formula is able to replace by EBIT.

Net profit margin (NPM)

The net profit margin is the percentage of net profit to sales revenue, represents the relationship between a company's net income and total sales that have already realized.

This indicator reflects the net profit gained from each dollar's sales revenue, indicating the level of sales revenue. The higher net profit margin the company achieved, the more effective it is in transferring sales into real profits.

The compute formulas for net profit margin and operating profit margin are quite similar. The difference is, under net profit margin, fixed financial costs and taxes are included in calculation. The formula for net profit margin is as follows:

$$NPM = \frac{EAT}{revenue}. \tag{2.7}$$

Return on assets (ROA)

Return on assets is defined as the amount of net profit created by per unit of company's assets.

This ratio is one of the most widely used indicators to measure the profitability of company. The index in proportion to the effectiveness of company's asset utilization. High index shows that the company has achieved good results in increasing income and saving funds. Vice versa. The management of a company is usually very closely concerned about this indicator, especially in analyzing the profitability, and uses it for both horizontal and vertical comparison.

To compute the rate of return on assets, we can use the formula below:

$$ROA = \frac{operating\ profit}{assets}. \tag{2.8}$$

Same as calculating operating profit margin, the operating profit can be replaced by EBIT.

Return on equity (ROE)

Rate of return on equity measures the amount of net income a company earned by per unit of investment. This index is always used as a reference by investors and shareholders of a company, through which the investors are able to know how effectively their investment is being utilized. As for the assessment of the index, the higher rate means the better performance of the company.

The return on equity formula is as follows:

$$ROE = \frac{EAT}{equity}. \quad (2.9)$$

2.3.2 Liquidity ratios

Liquidity reflects how fast an asset can be traded into cash and its equivalents. Not only managers, but also investors need to be aware of whether the company has ability to transfer its assets into cash, then pay off its short-term liabilities. Being able to measure the availability of cash and cash equivalent to meet company's current liabilities and obligations, the liquidity ratio is regarded as a sort of key index in financial analysis.

Current ratio, quick ratio and cash ratio are significant components of liquidity ratios. Company managers and investors should choose appropriate ratio for analysis according to different situations.

Current ratio

This ratio is a measurement of company's liquidity as well as short-term (current) liability coverage. Which means how much current asset is available for company to cover one unit of current liability. Theoretically, the ratio is the lager the better. When the figure of ratio is greater than one, indicates the company is surely capable of affording the liabilities. However, the company, on the other hand, may prefer a lower ratio because that would mean it can use more assets in long-term investments for getting higher returns and growing business.

The current ratio formula is:

$$current\ ratio = \frac{current\ assets}{current\ liabilities}. \quad (2.10)$$

Quick ratio

Quick ratio is commonly explained as a measurement of a company's ability to meet short-term repayment needs by using liquidity assets. Though quick ratio is similar to the current ratio, it takes more factors into account, and get more reliable and accurate result than the other one.

There are two ways to calculate the liquidity assets. Thus, I will present the formula in two versions:

$$a) \quad quick\ ratio = \frac{current\ assets - inventories}{current\ liabilities}, \quad (2.11)$$

$$b) \quad quick\ ratio = \frac{cash + marketable\ securities + account\ receivable}{current\ liabilities}. \quad (2.12)$$

Cash ratio

Cash ratio refers to the ratio of a corporate's cash and cash equivalent to total current liabilities, directly reflecting the liquidity of the firm. Cash ratio is helpful in creditors' decision making.

Comparing with other liquidity ratios, especially the quick ratio, computing cash ratio is more conservative, as some elements like account receivable are excluded from the calculation.

The formula of cash ratio is as follows:

$$cash\ ratio = \frac{cash + marketable\ securities}{current\ liabilities}. \quad (2.13)$$

2.3.3 Solvency ratios

Solvency ratio, also called leverage ratio, is a metric used to measure the capacity of a company to meet its total debts and obligations.

To a large extent, the index can reflect an enterprise's operational risk. The greater the index, the higher the risk that company will default in the payment. Used as a tool by creditors, the ratio is better to be evaluated comprehensively according to the average level among the industry, instead of viewed in isolation.

For further details of solvency ratios, this section will be approached from three parts of debt ratio, debt-to-equity ratio and interest coverage.

Debt ratio

Debt ratio, also referred to as debt-to-assets ratio, is the ratio of total debts to total assets. People use this ratio in order to find out how much of the total assets is financed through borrowing debts in percentage. In addition to this, the ratio can also measure the extent to which the creditor's interests are protected.

The ratio meaning a metric of firm's financial stability. The value of figure is inversely proportional to the firm's solvency. Thus, the company with high figure is more insolvent and unstable for the creditors.

The debt ratio's formula is as follows:

$$debt\ ratio = \frac{total\ debt}{total\ assets}. \quad (2.14)$$

Debt-to-equity ratio

Debt-to-equity ratio is a metric of company's financial leverage. It shows the ratio of assets financed by debt to which financed by equity. It can be used to measure whether a company's debt is too heavy when compared with the shareholders' equity.

Creditors and investors are both closely concerned about this ratio, as it reflects if the business is risky or not. If the debt-to-equity ratio is too high for company to service the loan, the company will be considered as high risky object and not worth to be invested.

Debt-to-equity formula is as follows:

$$debt\ to\ equity = \frac{total\ debt}{equity} \quad . \tag{2.15}$$

One thing need to note is that the total debt in the equation can be replaced by total liabilities.

Invest coverage

There's another name for investment coverage is called time interest earned ratio. The ratio indicates how much money a company is able to pay for its interest on a pre-tax base. Thus, to compute the ratio, first we need to know the earnings before interest and taxes (that is, operating profit), then divided it by interest paid. The bigger the result, the stronger the company's ability is in covering the interest payment.

As we described before, the equation as shown below:

$$interest\ coverage = \frac{operating\ profit}{interest\ paid} \quad . \tag{2.16}$$

2.3.4 Activity ratios

Activity ratios, also known as assets management ratios, are indicators used to measure company's assets turnover, which means how effectively a company utilizes its assets.

How quickly can a firm turn asset into cash or sales is a good indicator of how well that business run. Management and accounting department use several activity ratios to measure their business efficiency, including average collection period, accounts receivable turnover, inventory turnover and total assets turnover.

Most companies need to compare their activity ratios with their competitors' to truly measure their efficiency. A higher ratio means the business is making better use of its assets. Activity ratios do not work well when comparing business across different industries.

Average collection period (ACP)

The indicator measures how much time it will take for a company to collect its accounts receivable. The shorter the period is, the stronger the ability to converse the accounts receivable into cash. If the actual payback period exceeds the enterprise repayment period, indicating that the capital operation is not so efficient.

The formula is as follows:

$$ACP = \frac{accounts\ receivable}{credit\ sales} \cdot 360, \tag{2.17}$$

As ACP is a supplementary indicator of the accounts receivable turnover, the equation can be shown like below as well:

$$ACP = \frac{360}{accounts\ receivale\ turnover}. \tag{2.18}$$

Accounts receivable turnover (ART)

Accounts receivable turnover is a metric represents the average number of time a company's accounts receivable turns into cash during a specific period of time (mostly in one year). To compute the ratio, we can use the formula below:

$$ART = \frac{credit\ sales}{accounts\ receivale}. \tag{2.19}$$

Inventory turnover (IT)

Inventory turnover ratio reveals the number of times company created its inventory and sold it over a set period. A low inventory turnover rate implies the company has too much inventory and weak in sales. However, a high rate represents the company is well running.

To compute the ratio, we use the cost of goods sold (COGS) divided by average inventory. For instance, if it cost a company 10,000 USD in a year to make the goods it sales, and its average inventory equals 5,000 USD, therefore the inventory turnover is 2, meaning the firm made and sold its inventory 2 times during a year.

The formula is as follows:

$$IT = \frac{COGS}{average\ inventory}. \tag{2.20}$$

Total assets turnover (TAT)

Total assets turnover shows how fast a company turns assets into revenue.

To compute the total assets turnover, we use revenue divided by total assets of a company. If a company last year's sales revenue was 100,000 USD, and its total assets were worth 50,000 USD, thus the total assets turnover equals 2. Which means the company turned over its assets 2 times in a year

The formula is as follows:

$$TAT = \frac{revenue}{total\ assets} \ . \tag{2.21}$$

2.3.5 DuPont analysis

DuPont analysis is also called pyramidal decompositions. This method is based on comprehensively analyzing the relationship between several major financial ratios.

Using DuPont analysis is able to evaluate a company's profitability, the return of shareholders' equity, and the performance of the enterprise from the financial point of view. The most noticeable feature of this method is the combination of influence factors to build a complete indication system. The basic idea is to decompose the return on equity of enterprises into the product of a number of financial ratios, which will help in-depth analyze and evaluate business performance. With this approach, the financial ratio analysis can be much more clear, prominent and accurate for report analysts to understand the state of operation and profitability of the enterprise. Moreover, from the point of view of company managements, it helps them build a clear view of what affects the return on equity, and lights the way forward to make the company operate healthily.

In particular, according to DuPont analysis, the first step is to decompose return on equity (ROE) into three factors: net profit margin, total assets turnover and financial leverage. This process can be given in the form of mathematical equation:

$$ROE = net\ profit\ margin \cdot total\ assets\ turnover \cdot financial\ leverage. \tag{2.22}$$

Then breaking down each component in the above equation, we'll get the formula as below:

$$ROE = \frac{EAT}{equiy} = \frac{EAT}{revenue} \cdot \frac{revenue}{total\ assets} \cdot \frac{total\ assets}{equity}. \tag{2.23}$$

To move one step forward, the net profit margin can be further decomposed into three factors: tax burden, interest burden and operating burden. The formula would change into:

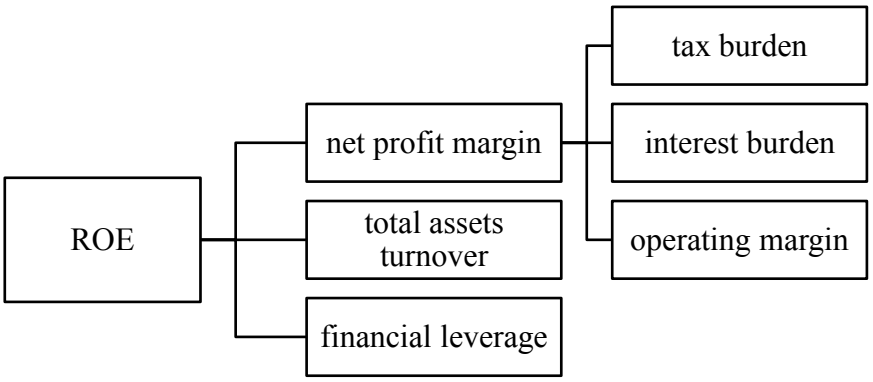
$$ROE = (tax\ burden \cdot interest\ burden \cdot operating\ margin) \cdot total\ assets\ turnover \cdot financial\ leverage. \quad (2.24)$$

And then, just like what we have down before, breaking down each factor. After that, we will get the final form of equation:

$$ROE = \frac{EAT}{EBT} \cdot \frac{EBT}{EBIT} \cdot \frac{EBIT}{revenue} \cdot \frac{revenue}{total\ assets} \cdot \frac{total\ assets}{equity}. \quad (2.25)$$

So far, we have already get the final version of the pyramidal decomposition, which includes many elements. To make the equation more intuitive, the equation can be presented in the form of a graph:

Graph. 2.1 pyramidal decomposition.



After acquiring the theoretical knowledge of DuPont analysis, we need to know how to quantify the influence of each component ratio. In DuPont analysis, there are four methods in total: method of gradual changes, logarithmic decomposition method, functional decomposition method and integral decomposition method. Before introducing each method, we should start with computing several basic data, because influence quantifications will rely on these data.

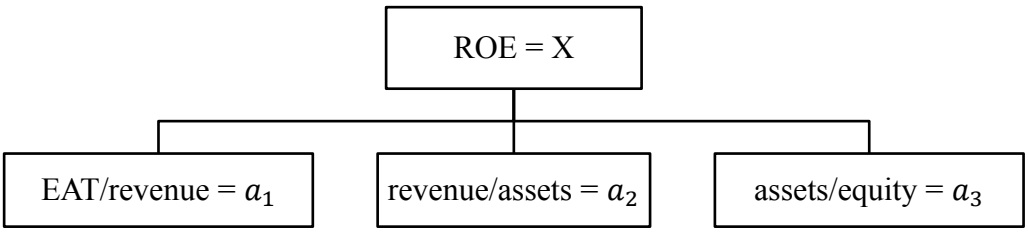
$$Absolute\ change: \Delta ROE^{abs} = ROE_1 - ROE_0, \quad (2.26)$$

$$Relative\ change: \Delta ROE^{rel} = \frac{ROE_1 - ROE_0}{ROE_0}, \quad (2.27)$$

$$Index\ of\ the\ change: I_{ROE} = \frac{ROE_1}{ROE_0}. \quad (2.28)$$

The following step is to decomposition the basic ratio. For instance, assume that the basic ratio is ROE, then it would be broken down like below:

Graph. 2.2: Decomposition of ROE



Method of gradual changes

This method basic on absolute changes in component ratios. And the number of component ratios equals to the number of equations for influence quantification. The advantage of this method is that you don't need to bother the sign of value in component ratio. However, we should note that the order in decomposition may influence the results.

Assume that there're three component ratios, equations for influence quantification would be shown as follows:

$$\begin{aligned} \Delta X a_1 &= \Delta a_1 \cdot a_{2,0} \cdot a_{3,0}, \\ \Delta X a_2 &= a_{1,1} \cdot \Delta a_2 \cdot a_{3,0}, \\ \Delta X a_3 &= a_{1,1} \cdot a_{2,1} \cdot \Delta a_3. \end{aligned} \tag{2.29}$$

As a postscript to this part I should add that, X is basic ratio, ΔX is absolute change in the basic ratio, a refers to component ratio, Δa means absolute change in the component ratio and $\Delta X a_i$ represents absolute change in the basic ratio caused by the change in the first (a_1) component ratio.

Logarithmic decomposition method

In this method, we just need only a single one formula applied to each component. Assume that the number of component is i, then equation of the change of basic ratio caused by each component ratio is as follows:

$$\Delta X a_i = \frac{ln I_{a_i}}{ln I_x} \cdot \Delta X. \tag{2.30}$$

In addition, X is basic ratio, ΔX is absolute change in the basic ratio, I_x is the symbol of index of change in basic ratio and I_a is the symbol of index of change in component ratio.

Functional decomposition method

This method is based on relative changes in either basic and component ratio. To calculate the influence quantification, we need to compute these relative changes first using equations below:

$$\Delta X^{rel} = R_x = \frac{X_1 - X_0}{X_0},$$
$$\Delta a_i{}^{rel} = R_{a_i} = \frac{a_1 - a_0}{a_0}. \tag{2.31}$$

Equations for computing the change of basic ratio caused by each component ratio is as follows:

$$\Delta X_{a_1} = \frac{1}{R_x} \cdot R_{a_1} \cdot \left(1 + \frac{1}{2} \cdot R_{a_2} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} \cdot R_{a_2} \cdot R_{a_3}\right) \cdot \Delta X,$$
$$\Delta X_{a_2} = \frac{1}{R_x} \cdot R_{a_2} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} \cdot R_{a_1} \cdot R_{a_3}\right) \cdot \Delta X, \tag{2.32}$$
$$\Delta X_{a_3} = \frac{1}{R_x} \cdot R_{a_3} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_2} + \frac{1}{3} \cdot R_{a_1} \cdot R_{a_2}\right) \cdot \Delta X.$$

Integral decomposition method

The calculation of this method is quite similar to the previous one, except a new factor need to be computed:

$$R_{x^*} = \sum_{i=1}^{N} R_{a_i}. \tag{2.33}$$

Generally, the formula of influence of i-th component ratio is given as:

$$\Delta X_{a_i} = \frac{R_{a_i}}{R_{x^*}} \cdot \Delta X. \tag{2.34}$$

3 Financial characteristics of selected company

In this chapter, I will introduce financial characteristics of Lego Group. In order to analyse a company's performance from the financial point of view, we need to have deep knowledge of the company itself. This helps the analyst to draw a comprehensive and deep conclusion from an insider's point of view. Therefore, in this chapter, I will introduce Lego Group in depth, and I would like to discuss it in two parts – basic description and common-size analysis of the selected company.

3.1 Basic description of Lego Group

In this part, first it will provide some basic information about the company according to its profiles. Then, the company will be described more deeply from the following three aspects: brief history, structure and the competition of the firm.

Brief information about Lego Group from its homepage:

"Lego Group is a privately held, family-owned company with headquarters in Billund, Denmark, and main offices in Enfield, USA, London, UK, Shanghai, China, and Singapore. Founded in 1932 by Ole Kirk Kristiansen, and based on the iconic LEGO® brick, it is one of the world's leading manufacturers of play materials.[1] *"*

The company motto: "*Only the best is good enough*", guided it growing bigger and bigger, and now it has already become one of the world's most powerful brands. On November 25, 2016, the new plant of Lego Group located in Jiaxing, south of Shanghai, China was put into use. The company also has plants in Denmark, Hungary, Mexico and the Czech Republic.

To make high standard bricks for kids, the company's products are enriched with creative ideas while insuring the safety of players. Playing Lego bricks has a positive effect on kids. It makes kids learn and develop through play.

Besides of plaything, Lego Group also successfully invests in other industries, for example, movies, games, amusement parks (LEGOLAN Parks) and competitions as well.

3.1.1 Brief history of Lego Group

Has more than eighty years of history, Lego Group was funded in 1932 by Ole Kirk Kristiansen in Denmark. In that time, the company had only 6 to 7 employees and its initial products were made of wood. Two years after, Ole Kirk Kristiansen named his products

[1] Source: https://www.lego.com/en-us/aboutus

“LEGO”, means “play well” in Danish, and “I put together” in Latin words. In 1940s, the company was able to produce plastic toys, and it produced around 200 different plastic and wooden toys. The world first LEGOLAND opened in Billund, 1968.

In early 2000s, the company experienced a tough time and hit the bottom. Especially from 2003 to 2004, the sales plummeted continuously, and the profit was in deep loss. However, after a series of reform, things were getting better. In 2005, total revenue of Lego Group was 7,050 million DKK. Date back to 2009, Lego Group became the world’s fifth largest toy manufacturer in terms of sales. Until 2015, the number reached up to 35,780 million DKK, which was around five times as ten years before.

Since entering the twenty-first century, Lego Group strengthened cooperation with other industries, typically with entertainment companies and game companies. Warner Bros. and Lego Group announce plans to develop the first-ever feature film based on Lego bricks and icons in 2009, and then Lego Group announces a multi-year partnership with Disney Consumer Products obtaining exclusive rights to construction toys based on the entire portfolio of Disney and Disney Pixar properties in the same year.

Till 2016, Lego Group has over 18,000 employees, and covers more than 70 nationalities.

3.1.2 Management structure of Lego Group

The structure of Lego Group’s management consists of the management board, the corporate management and the board of directors. These three sections corporate with each other and the division of labour is clear-cut, to make sure the group operates well.

Management board

This five-member board plays a leading role in the business. The board teamed up with president & chief executive officer, chief operations officer & chief HR officer, chief officer executive, chief marketing officer and chief commercial officer. Each one in board is charged with specific responsibilities.

Corporate management

Corporate management of Lego Group consists of twenty-one members. Each member is in charge of a branch department. For example, there are two product groups, each of them has a director, and the directors are in the corporate management. In Lego Group, there are

branch departments for continents, and to be peculiar, for specific country, like China. There are also some departments have specific functions, for instance, department of corporate legal affairs, corporate business services, finance department, IT department, procurement department and so on. This segment contains the major participants of a company's management.

Board of directors

The board of directors is the legal representative of a joint stock company. Matters may be determined by the board of directors in addition to the powers exercisable by the shareholders' general meeting in accordance with the provisions of the law and the articles of association. The board of directors is the company's decision-making body, and is responsible to shareholders general meeting.

3.1.3 Competition and risk

The main competition that Lego Group facing with is from the same industry competitors，for example, Hasbro, another giant in toy manufacturing industry, and some other " building-brick" style toys like Mega Blocks.

Competition

However, Lego Group has absolute advantages in the competition. What Lego means to its fans now is far more than toy. It is high quality and brand effect that makes Lego special. In the past decade, Lego Group has cultivated solid brand loyalty and already become a symbol of block, thus its place in the industry is secure. In other words, no one can really compete with Lego inside the industry, though their price may be much lower than Lego, such as Mega Blocks.

The Hasbro company used to be a strong competitor of Lego Group in 2000s. In that time, the movie of Star Wars and Transformers were so popular that toy producers start seeking cooperation. Eventually, Hasbro cooperated with Transformers movie and Lego Group launched the Lego Star War. The truth is, Star Wars has deeper and wider effect on people and has stronger fans appeal than Transformers, thus Lego Group defeated Hasbro and then became the leader of the industry.

Outside the industry, there is a competition between traditional toys and electronic game devices. Nowadays, more kids have been obsessed with video games. Electronic game player

may replace blocks and other traditional play materials. This trend would be a serious problem to Lego Group.

Risk

The major internal risk to Lego Group is innovation. Every coin has two sides, innovation brings profits to the company, however, also has once led it into dilemma. Actually, innovation itself is full of uncertainty. The company won't sure whether the new products will be popular after launch. In 2003, after the great successful brought by the products Lego Star War and Lego Harry Potter, Lego Group pushed forward its new plan – the Galidor, but end in failure. This unwise innovation caused the group nearly bankrupt. A company needs to be innovative, which is undeniable, but unreasonable innovations can be deadly for a business.

With the era changing, some external risks appeared as well. Financial risk is another major threaten to the group. Such as credit risk, foreign exchange risk, interest rate risk and some other market risk, like electricity derivatives, liquidity risk and so on. For instance, the tax burden of exports to the EU and the United States increased led to higher prices. From the economic point of view, caused by the financial crisis in 2008, many families cut down expenses in toys. Most of risks are hard to predict, and eventually become great challenges for the company.

The credit risk of the group is considered to be rather low, because the company only uses high rating financial instruments, and only chooses reliable insurance companies.

Lego Group is an international corporation, associated with significant cash flows in multiple currencies, such as USD, EUR, GBP, CZK, HUF, etc., thus, foreign exchange risk has huge impact on the company.

The group's interest rate risk mainly relates to interesting-bearing debt and interest-bearing assets, for example liquid funds. However, this kind of debt and assets are in small amount, and won't cause much change on company's result.

3.2 Common-size analysis of Lego Group

The financial performance of Lego Group will be analysed and stated in this part. According to the common-size analysis, the description will be divided into two sections, one section is about vertical common-size analysis and the other one is about horizontal common-size analysis of the company. All contents would be based on data from Lego Group's

annual reports during past five years. Following Tab. 3.1 shows a simplified balance sheet which collects data from 2011 to 2015. You can find simplified income statement in Tab. 3.2.

Tab. 3.1: Lego Group's simplified balance sheet. (in millionDKK)

	2011	2012	2013	2014	2015
Assets					
Intangible assets	190	209	260	271	332
Property, plant and equipment	3395	4566	6290	8456	10301
Other non-current assets	117	134	289	659	591
Non-current assets	**3702**	**4909**	**6839**	**9386**	**11224**
Current assets	**9202**	**11443**	**11113**	**12033**	**16653**
Total assets	**12904**	**16352**	**17952**	**21419**	**27877**
Equity and liabilities					
Equity	**6975**	**9864**	**11075**	**12832**	**17751**
Total non-current liabilities	1058	428	1144	1278	1073
Total current liabilities	4871	6060	5733	7309	9053
Liabilities	**5929**	**6488**	**6877**	**8587**	**10126**
Total equity and liabilities	**12904**	**16352**	**17952**	**21419**	**27877**

Tab. 3.2: Lego Group's simplified income statement (in million DKK)

	2,011	2,012	2,013	2,014	2,015
Revenue	18731	23405	25382	28587	35780
Production costs	-5519	-6758	-7598	-8071	-9814
Gross profit	**13212**	**16647**	**17784**	**20507**	**25966**
Sales and distribution expenses	-5257	-6150	-6635	-7782	-9765
Administrative expenses	-1104	-1326	-1359	-1444	-2239
Other operating expenses	-1185	-1219	-1454	-1584	-1718
Operating profit	**5666**	**7952**	**8336**	**9697**	**12244**
Financial income	34	19	13	12	12
Financial expenses	-158	-449	-110	-218	-108
Profit before income tax	**5542**	**7522**	**8239**	**9491**	**12148**
Tax on profit	-1382	-1909	-2120	-2466	-2974
Net profit	**4160**	**5613**	**6119**	**7025**	**9174**

These two tables contain basic data required by common-size analysis. After integrating five years' data into one table, we can learn intuitively from Tab. 3.1 that during the past five years, both company's assets and total equity and liabilities were in steady-state growth.

As for Tab. 3.2, the key information is that the firm has healthy development through these 5 years from 2011 to 2015. We can tell that though total expense kept increasing, revenue increased more, thus the overall trend for net profit is increase.

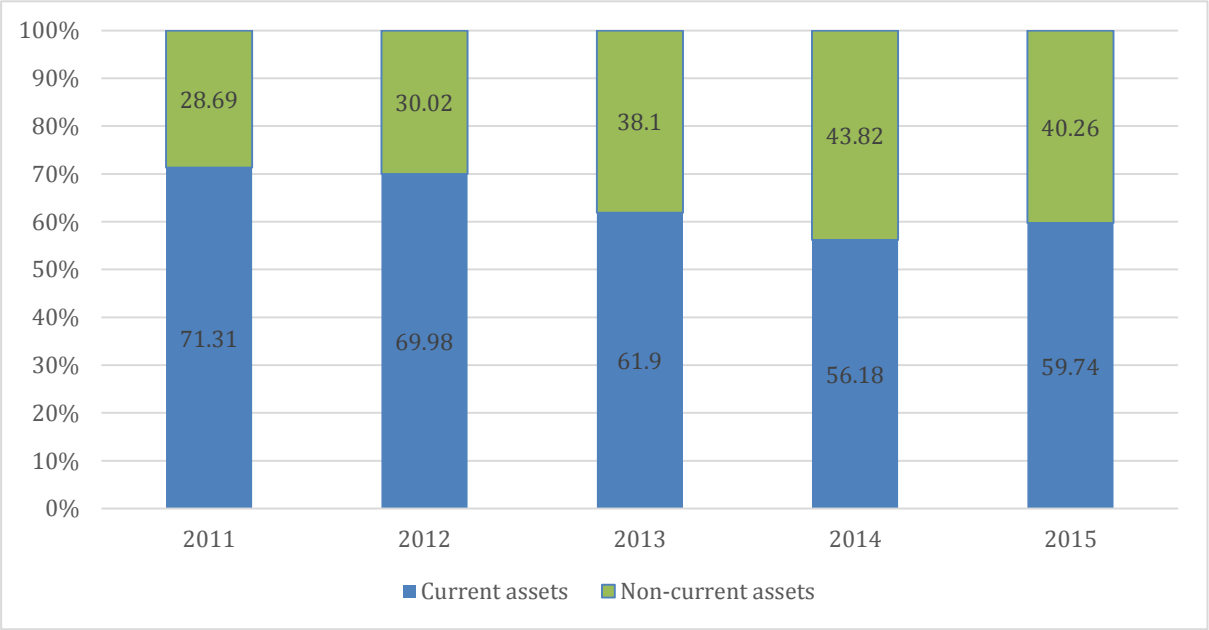
3.2.1 Vertical common-size analysis of Lego Group

Now we are going to analyse the selected company through vertical common-size analysis method. As we have been introduced in the former chapter, the core of vertical common-size analysis is to show each item in a financial statement as percentage of the base figure in selected time period. First, I will compute each element's share of the total assets in percentage. The result will be presented in Tab. 3.3, and in Chart 3.1 as well.

Tab. 3.3: The proportion of each item in total assets (%)

	2011	2012	2013	2014	2015
Current assets	**71.31**	**69.98**	**61.90**	**56.18**	**59.74**
Inventories	11.94	10.43	10.16	10.19	9.85
Trade receivables	29.80	30.27	27.13	27.50	22.99
Other receivables	4.67	3.85	5.27	3.42	3.30
Prepayment	3.58	1.38	0.41	0.46	0.64
Current tax receivables	1.89	0.13	0.36	0.22	0.91
Receivables from related parties	15.11	21.05	12.87	12.13	17.69
Cash and cash equivalents	4.32	2.86	5.70	2.25	4.34
Non-current assets	**28.69**	**30.02**	**38.10**	**43.82**	**40.26**
Intangible assets	1.47	1.28	1.45	1.27	1.19
Property, plant and equipment	26.31	27.92	35.04	39.48	36.95
Other non-current assets	0.91	0.82	1.61	3.08	2.12
Total assets	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Chart 3.1: Vertical common-size analysis of assets. (%)



We are able to easily tell from the Tab. 3.3 that the proportion of current assets decreases during the first three years, and then has a modest recovery from 2014 to 2015. The proportion of non-current assets continues to rise until reaching a peak in 2014. However, the changes of proportion are in limited scope, which proves the dominance of Lego Group in keeping a stable capital structure during past five years.

Proportion of cash and cash equivalents goes up and down alternately. Figures in 2011, 2013 and 2015 almost twice of which in 2012 and 2014. This may cause by extensive investments in production capacity through these years. In 2012, a new Lego factory opened in Kladno, the Czech Republic. Later that year, a new high-bay warehouse was put into use. In 2013, a manufacturing facility was planned to build in China to solely supply the Asian market. Then in the following years, factories in Hungary, Mexico were gradually put into use. Meanwhile, considerable investments made in an upgrade of equipment in the moulding factory in Denmark may be the reason why proportion of cash and equivalents reached a lowest point in 2014.

These processes of capacity investment should have led to the increase of inventories, however, a very noticeable trend is the persistent decrease of inventories, which means Lego Group was doing well in sale.

Focusing on the non-current assets. At the end of 2011, company has impaired intangible fixed assets by closing down some IT projects. This may explain the slightly drop of intangible assets' proportion.

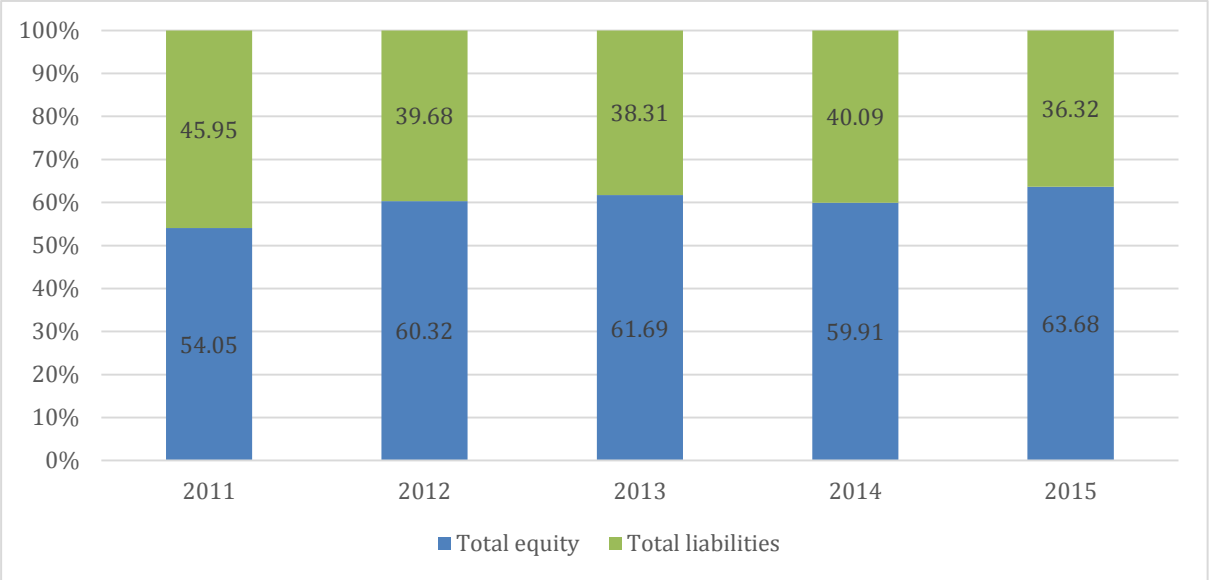
From Chart 3.1 it can be safely concluded that during the years, current assets plays a dominant role in company's total assets structure, indicating the company has great assets liquidity. With time goes by, the proportion of fixed assets gradually growth, presents that Lego Group pays more attention on fixed assets than before.

In the following section, I would like to analyze each item based on the amount of total equity and liabilities. results presented in the Tab. 3.4 and Chart 3.2.

Tab. 3.4: The proportion of each item in total equity and liabilities (%)

	2011	2012	2013	2014	2015
Equity	**54.05**	**60.32**	**61.69**	**59.91**	**63.68**
Liabilities	**45.95**	**39.68**	**38.31**	**40.09**	**36.32**
Total non-current liabilities	8.20	2.62	6.37	5.97	3.85
Total current liabilities	37.75	37.06	31.94	34.12	32.47
Total equity and liabilities	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Chart 3.2: Vertical common-size analysis of equity and liabilities (%)



We can easily tell from Tab. 3.4 that the proportion of equity increases from 2011 till 2013, then drops a little in 2014, and back to the top in 2015. The proportion of total liabilities is in overall a downward trend. As for specified liabilities, very little proportion of long-term (non-current) liabilities is held by the company, the current liabilities remain dominance in total liabilities. According to the annual reports, Lego Group contingently leases various offices,

Lego retail store, warehouses and plant and machinery under non-cancellable operating leases [2]. The group also leases plant and machinery under cancellable operating leases.

The Chart 3.2 reflects Lego Group was mainly financed by equity. Both proportions of total equity and total liabilities are remaining in a stable situation. The company keeps the proportion of total equity around 60%, and keeps the figure of total liabilities around 40%. Equity financing oriented financing structure has advantages in lower loan burden and may provide help from wise partners.

Besides analyzing balance sheet, we can also do vertical analysis base on income statement. In the following Tab. 3.5 and Chart 3.3, items will be calculated, and presented by proportions in revenue.

Tab. 3.5: The proportion of each item in revenue (%)

	2011	2012	2013	2014	2015
Revenue	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
Production costs	29.46	28.87	29.93	28.23	27.43
Gross profit	**70.54**	**71.13**	**70.07**	**71.74**	**72.57**
Sales and distribution expenses	28.07	26.28	26.14	27.22	27.29
Administrative expenses	5.89	5.67	5.35	5.05	6.26
Other operating expenses	6.33	5.21	5.73	5.54	4.80
Operating profit	**30.25**	**33.98**	**32.84**	**33.92**	**34.22**
Financial income	0.18	0.08	0.05	0.04	0.03
Financial expenses	0.84	1.92	0.43	0.76	0.30
Profit before income tax	**29.59**	**32.14**	**32.46**	**33.20**	**33.95**
Tax on profit	7.38	8.16	8.35	8.63	8.31
Net profit	**22.21**	**23.98**	**24.11**	**24.57**	**25.64**

Tab. 3.5 presents vertical common-size analysis of income statement of Lego Group according to the company's revenue. It shown in the table that the operating profit of the company constantly goes up and keeps in the limit from 30% to 35%, lower than 50%, which is not a good result to see. The proportion of operating profit reflects the performance of a company in its main business. Lego Group's proportion of operating profit is lower than 50%, indicates that most of the company's profit are from outside of the main business. This is the sign of unreasonable business structure. During the past five years, Lego Group has paid

[2] Lego Group annual report 2013. Note 23. Contingent assets, contingent liabilities and other obligations.

much attention on its branch industries, movie and video game for example, and this may cause the situation of non-ideal operating profit index.

When we compare all the expenses, we see the major costs of the company are production costs and sales and distribution costs. Other expenses like administrative costs and financial costs have little influence on total revenue. Production costs and sales costs are in very close proportions, around 27%-28%. The figures are a little high for a company's expenses to say.

In chart 3.3, we can learn intuitively that through five years, items don't have any too obvious fluctuation, which reflects Lego Group maintaining stable development.

3.2.2 Horizontal common-size analysis of Lego Group

In this section, I would like to state horizontal common-size analysis base on financial statements of Lego Group. The aim of horizontal common-size analysis is to find out trends of amounts of items in financial statements over a selected period of time. This would be a helpful tool to evaluate changes of a company's performance. First step of horizontal analysis is to select time points as base year and comparison year. In my following analysis, each year's data would be compared with which in the previous year. Then I will compute absolute change and percentage change of each item in balance sheet. Absolute changes will be presented in Tab. 3.6, and relative changes will be presented in Tab. 3.7.

Tab. 3.6: Absolute change of each item in balance sheet. (in million DKK)

	2011/2012	2012/2013	2013/2014	2014/2015
Non-current assets	1207	1930	2547	1838
Current assets	2241	-330	920	4620
Total assets	3448	1600	3467	6458
Equity	2889	1211	1757	4919
Non-current liabilities	-630	716	134	-205
Current liabilities	1189	-327	1576	1744

Tab. 3.7: Percentage change of each item in balance sheet. (%)

	2011/2012	2012/2013	2013/2014	2014/2015
Non-current assets	32.60	39.32	37.24	19.58
Current assets	24.35	-2.88	8.28	38.39
Total assets	26.72	9.78	19.31	30.15
Equity	41.42	12.28	15.86	38.33
Non-current liabilities	-59.55	167.29	11.71	-16.04
Current liabilities	24.41	-5.40	27.49	23.86

As can be seen from Tab. 3.6, all figures in the line of non-current assets and the line of total assets are positive, which means the amount keeps increasing through five years. Absolute change of non-current assets increases from 2011 to 2013, then has a slight drop in 2015, meaning that the increment speed slows down in 2015. The most significant change in current assets is in the year 2013, the figure is negative, reflects that the amount of current assets decreases in 2013. Nevertheless, the number back to positive in the following years and reaches a peak in the year 2015. Similarly, total asset has the same trend with current asset. A very noticeable trend was the steady decrease in absolute change of total equity from 2011 to 2013, and then, there is a large increase from 2014 to 2015. Negative figures shown in non-current liabilities reflect it decreases for some reasons. As for current assets, only one large drop exists in 2013. According to the table, Lego Group had a big problem in 2013, but soon recovered and backed to normal.

The following paragraphs will identify and discuss the trends in the Tab. 3.7. Total assets and total equity has the similar trend in percentage change, it may because the company finances its assets mainly by equity. The percentage change in term 2012/2013 is 167%, means amount of non-current liabilities in 2013 is one and a half time the size of 2012, revealed a fast increase. However, the trend didn't sustain. In 2015, non-current liabilities reduced by 16.04% compared with the previous year. The decrease in non-current liabilities reduces risk of the company to a certain degree.

Besides making analysis in balance sheet, we can also do horizontal common-size analysis base on income statement. Results shown in following tables.

Tab. 3.8: Absolute change of each item in income statement. (in million DKK)

	2011/2012	2012/2013	2013/2014	2014/2015
Revenue	**4674**	**1977**	**3205**	**7193**
Production costs	1239	840	473	1743
Gross profit	**3435**	**1137**	**2723**	**5459**
Sales and distribution expenses	893	485	1147	1983
Administrative expenses	222	33	85	795
Other operating expenses	34	235	130	134
Operating profit	**2286**	**384**	**1361**	**2547**
Financial income	-15	-6	-1	0
Financial expenses	291	-339	108	-110
Profit before income tax	**1980**	**717**	**1252**	**2657**
Tax on profit	527	211	346	508
Net profit	**1453**	**506**	**906**	**2149**

Tab. 3.9: Percentage change of each item in income statement (%)

	2011/2012	2012/2013	2013/2014	2014/2015
Revenue	**24.95**	**8.45**	**12.63**	**25.16**
Production costs	22.45	12.43	6.23	21.60
Gross profit	**26.00**	**6.83**	**15.31**	**26.62**
Sales and distribution expenses	16.99	7.89	17.29	25.48
Administrative expenses	20.11	2.49	6.25	55.06
Other operating expenses	2.87	19.28	8.94	8.46
Operating profit	**40.35**	**4.83**	**16.33**	**26.27**
Financial income	-44.12	-31.58	-7.69	0.00
Financial expenses	184.18	-75.50	98.18	-50.46
Profit before income tax	**35.73**	**9.53**	**15.20**	**27.99**
Tax on profit	38.13	11.05	16.32	20.60
Net profit	**34.93**	**9.01**	**14.81**	**30.59**

Tab. 3.8 and Tab. 3.9 shows absolute change and percentage change of each item in income statement. The increment speed had a slight fluctuation in 2013, after that the amount kept increasing and up to 7193 million DKK in 2015, the growth rate reached 25.16%. Though growth rate of gross profit in 2012 and 2015 are nearly the same, the amount of absolute change has a huge difference. The amount in 2012 is 3435 million DKK, and the

amount in 2015 is 5459 million DKK. The operating profit changes really fast in 2012, the growth rate is up to 40.35%. Net Profit's growth rates in 2013 and 2014 are quite low, but from 2014 to 2015, the absolute change of net profit grows from 906 million DKK to 2149 million DKK, and the growth rate goes up to 30.59%. According to the information provided by two tables, we can draw a conclusion that except 2013, the company's financial structure and operating performance is healthy and stable.

4 Financial analysis of Lego Group

This chapter will be focus on making financial ratio analysis, DuPont analysis and influence quantification of Lego Group according to methods and formulas we've introduced in the previous chapter. Using these methods helps us to comprehensive and in-depth understand Lego Group's operating condition.

The chapter is divided into six parts. The first four parts are about four categories of financial ratios, the fifth part will be DuPont analysis of the group, and the last part is influence quantification.

4.1 Profitability ratio of Lego Group

In this part, I would like to analyze the profitability ratios combined with actual data from Lego Group's financial statement. The most representative profitability ratios are operating profit margin, net profit margin, return on assets and return on equity. These four ratios can measure a company's ability of making profit from different aspects.

Operating profit margin (OPM)

Tab. 4.1 collects operating profit margins of Lego Group from 2011 to 2015. Chart 4.1 shows the trend of operating profit margin.

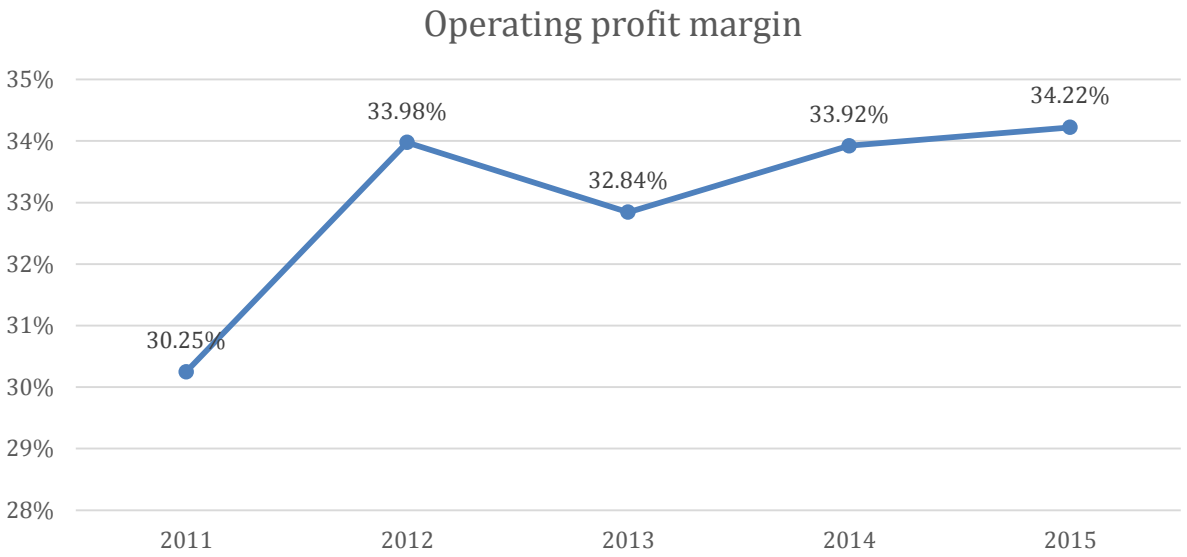
Tab. 4.1: Operating profit margin of Lego Group from 2011 to 2015 (%)

	2011	2012	2013	2014	2015
Operating profit	5666	7952	8336	9697	12244
Revenue	18731	23405	25382	28587	35780
Operating profit margin	**30.25**	**33.98**	**32.84**	**33.92**	**34.22**

Operating profit margin refers to the ratio of operating profit and revenue of an enterprise. It is a measure of business efficiency indicators, reflecting without regard to the non-operating cost, business managers' ability to obtain profits. The operating profit is the basis of net profit margin. Without a considerable operating profit margin, the company won't have a good performance on net profit margin. We can see from the chart that operating profit margin in 2011 is 30.25%, which means when Lego Group sells 100 DKK worth of goods, it can earn 30.25 DKK as operating profit. The numbers through five years are closely in the limit from 30% to 34%. The lowest point is 30.25%, appears in 2011. The peak is 34.22, appears in 2015.

The table can't clearly show the trend overall, so we need to transfer the Tab. 4.1 into a chart. Chart 4.1 presents fluctuation of operating profit margin of Lego Group from 2011 to 2015.

Chart 4.1: Operating profit margin of Lego Group from 2011 to 2015



According to the chart, the general trend of operating profit margin appears to be increases. It remains constant above 30%. There appears a sharp rise in the year 2012, the operating profit margin growths dramatically from 30.25 to 33.98%. The company experiences a gentle slide in 2013, which may because in period 2012-2013, company's revenue grows faster than operating profit, so the result decreases. On the whole, it is good to see the company's profitability is gradually increasing.

Net profit margin (NPM)

Tab. 4.2 collects net profit margins of Lego Group from 2011 to 2015. Chart 4.2 shows the trend of net profit margin.

Tab. 4.2: Net profit margin of Lego Group from 2011 to 2015 (%)

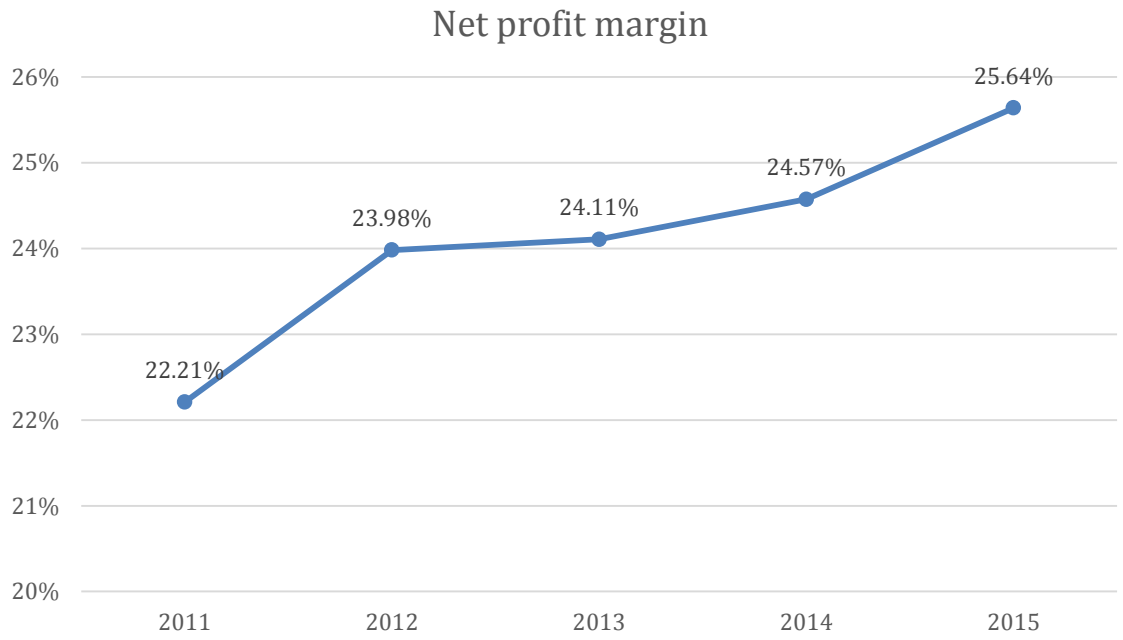
	2011	2012	2013	2014	2015
Net profit	4160	5613	6119	7025	9174
Revenue	18731	23405	25382	28587	35780
Net profit margin	**22.21**	**23.98**	**24.11**	**24.57**	**25.64**

Net profit margin is an indicator to measure how much net profit a company can earn when it sells one unit of product. Net profit margin can better reflect the company's profitability changes and differences in the profitability of different companies. From Tab.4.2, we can see that the figure keeps increasing from 2011 to 2015. The lowest figure 22.21% appears in 2011,

which means in 2011, the company can earn 22.21 DKK as net profit by selling 100 DKK worth of goods. And the highest point appears in 2015.

To find out the growth speed, we need to use line chart, shown as Chart 4.2.

Chart 4.2: Net profit margin of Lego Group from 2011 to 2015



As can be seen from the chart, the net profit margin reveals a general trend of steady rise. It is quite obvious that a sharp increase exists in 2011-2012, then the trend begins to flatten. This means the company is in a healthy operating condition. With reference to the annual reports, in recent years, Lego Group has invested in research and develop projects, updated equipment, improved sales channels and optimized the management, making the rise of company's net profit, thus increasing the net profit margin.

Return on assets (ROA)

Tab. 4.3 collects return on assets of Lego Group from 2011 to 2015. Chart 4.3 shows the trend of return on assets.

Tab. 4.3: Return on assets of Lego Group from 2011 to 2015 (%)

	2011	2012	2013	2014	2015
Operating profit	5666	7952	8336	9697	12244
Total assets	12904	16352	17952	21419	27877
Return on assets	**43.91**	**48.63**	**46.43**	**45.27**	**43.92**

The return on assets is an indictor used to measure the amount of operating profit created by per unit of assets. We can see from the Tab. 4.3, in 2012, the index rises sharply from

43.91% to 48.63%, then persistently declines all the way from 48.63% to 43.92%. The maximum value 48.63% exists in 2012, meaning the company can make 48.63 DKK of operating profit by 100 DKK worth of assets. The situation of decline caused by the high speed growth of total assets and non-ideal operating profit. Started from 2011, Lego Group had a large scale of investment on new factories and warehouses, expanded fix assets, thus led to the increase on total assets. However, operating profit shows the company is not so efficient on using the assets. That's the reason why company's return on assets is decreasing.

Chart 4.3: Return on assets of Lego Group from 2011 to 2015

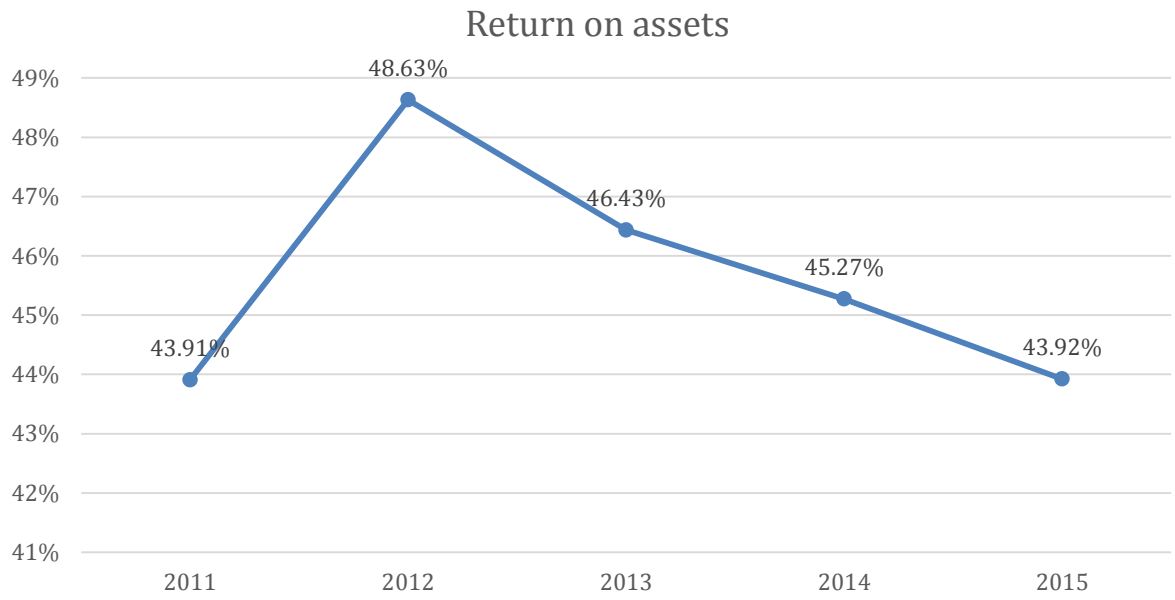


Chart 4.3 intuitively shows variation trend of the index. It is quite noticeable that there's a peak appears in 2012, after that the cure goes down year by year. The chart reflects that profitability of company through assets became weaker during years. Thus, other than expanding total assets, Lego Group should accordingly improve the utilization of company's assets.

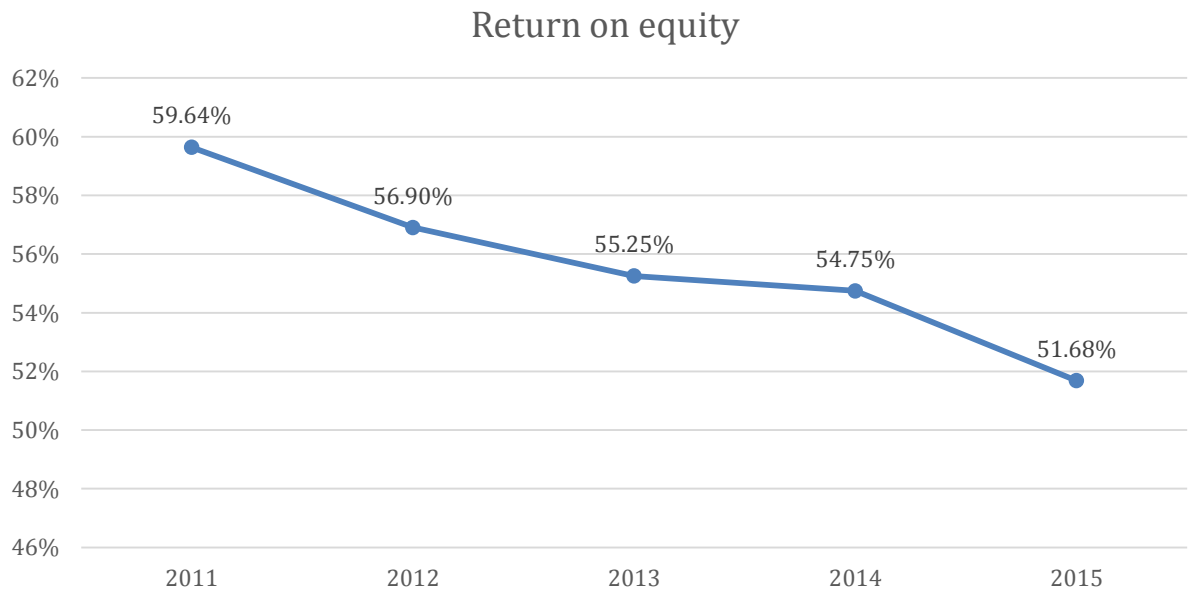
Return on Equity (ROE)

Tab. 4.4 collects return on equity of Lego Group from 2011 to 2015. Chart 4.4 shows the trend of return on equity.

Tab. 4.4: Return on equity of Lego Group from 2011 to 2015 (%)

	2011	2012	2013	2014	2015
Net profit	4160	5613	6119	7025	9174
Equity	6975	9864	11075	12832	17751
Return on equity	**59.64**	**56.90**	**55.25**	**54.75**	**51.68**

Chart 4.4: Return on equity of Lego Group from 2011 to 2015



Return on equity is one of the most important indicators for company's shareholders. The indicator reflects how much money can the company earn for its shareholder by using 100 units of investment. Lego Group's return on assets is decreasing. In 2011, it is in the highest position of 59.64%, till 2015, it is in the lowest position of 51.68%. Comparing with other companies, Lego Group has really high level of return on equity rate. According to Warren Edward Buffett's investment principle, a company's return on equity rate should be no less than 15%. An ideal level of return on equity is around 30%-40%. Thus, the return on equity of Lego Group surpasses many other companies.

It can be seen from the chart 4.4, the return on equity decreases year by year, all the way from 59.64% to 51.68%. From 2014 to 2015, the curve goes sharper than before, meaning the decrement speeds up. This trend caused by the weak on net profit. Company in recent years has attracted more and more equity, but increment speed on net profit is much slower than on equity. The company should make well-use of shareholders' investment, carry back the decreasing trend.

Though there's a downward trend, objectively Lego Group still has a good performance on profitability.

4.2 Liquidity ratios of Lego Group

In this part, we will measure the company's ability of transferring assets into cash by using liquidity ratios, for example by current ratio, quick ratio and cash ratio. Results of each ratio will be collected and presented in the form of table and chart.

Current ratio

Tab. 4.5 collects current ratios of Lego Group from 2011 to 2015. Chart 4.5 shows the trend of current ratio.

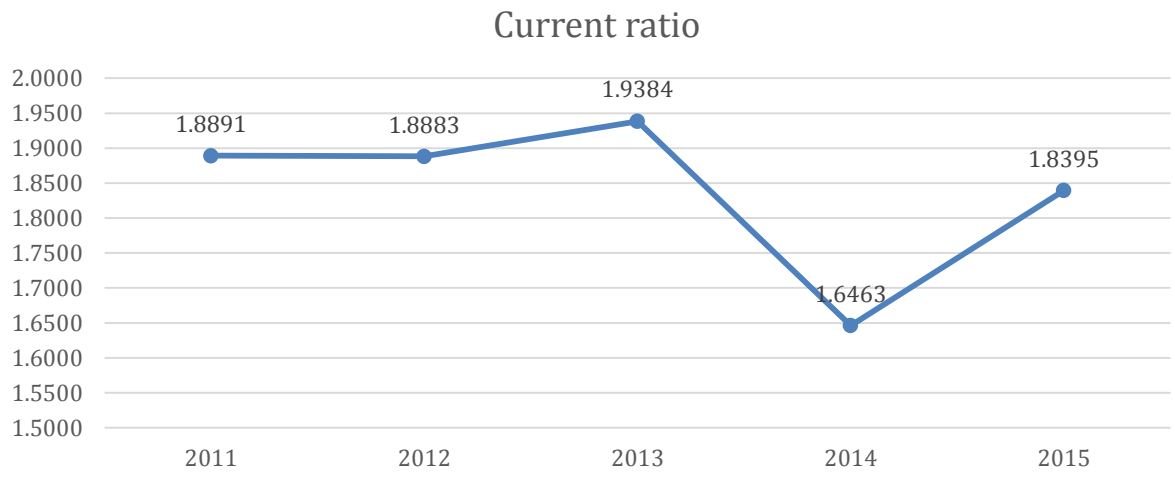
Tab. 4.5: Current ratio of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Current assets	9202	11443	11113	12033	16653
Current liabilities	4871	6060	5733	7309	9053
Current ratio	**1.8891**	**1.8883**	**1.9384**	**1.6463**	**1.8395**

The current ratio is one important indicator to measure a company's short-term solvency. The current ratio is preferably greater than 1. Using each year's current assets divided by current liabilities, we will get current ratio.

It is obvious that, each current ratio of Lego Group in five years in above 1, which is a good sign shows the high liquidity of the company. We can see from Tab. 4.5 that the highest current ratio 1.9384 appears in 2013, and the lowest one 1.6463 appears in 2014. As a whole, Lego Group's current ratio keeps in a satisfactory level.

Chart 4.5: Current ratio of Lego Group from 2011 to 2015



The Chart 4.5 indicates that the current ratio is stable in the first two years, then fluctuate greatly from 2013 to 2015. The ratio figure decreases slightly from 1.8891 to 1.8883, followed by a sharp increase to 1.9384 in 2013. It fells dramatically from 2013 to 2014, reaching the bottom at 1.6463. In 2015, the ratio experiences a recovery period and rises to 1.8395. In 2014, Lego Group not only had several construction project in China, Mexico and Czech Republic, but also made considerable investment in an upgrade of equipment in the moulding factory in Denmark. This may cause the company lacking of current assets, and lead to the significant drop of current ratio in 2014.

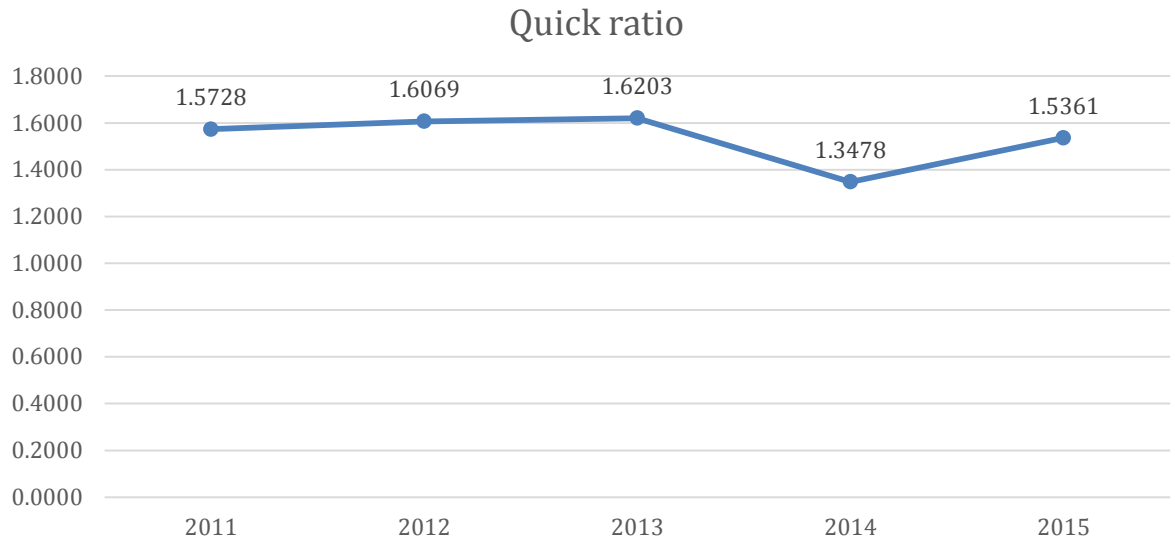
Quick ratio

Tab. 4.6 collects quick ratios of Lego Group from 2011 to 2015. Chart 4.6 shows the trend of current ratio.

Tab. 4.6: Quick ratio of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Current assets	9202	11443	11113	12033	16653
Inventories	1541	1705	1824	2182	2747
Current assets-inventories	7661	9738	9289	9851	13906
Current liabilities	4871	6060	5733	7309	9053
Quick ratio	**1.5728**	**1.6069**	**1.6203**	**1.3478**	**1.5361**

Chart 4.6: Quick ratio of Lego Group from 2011 to 2015



The quick ratio is a measurement of a company's current assets that can immediately transferred into cash, in order to pay out the current liability. As can be seen from Tab. 4.6, the maximum value is 1.6203 and the minimum value is 1.3478. This indicates the company has good liquidity.

The amount of inventory is stable through these years, so it won't cause much change in the trend. When we compare Chart 4.6 with Chart 4.5, we can find that the trend of quick ratio is quite similar to the trend of current ratio. The peak appears in 2013, and soon down to the bottom in 2014. The cause of this phenomenon has been explained before, so we will skip it in this section.

Cash ratio

Tab. 4.7 collects cash ratios of Lego Group from 2011 to 2015. Chart 4.7 shows the trend of cash ratio.

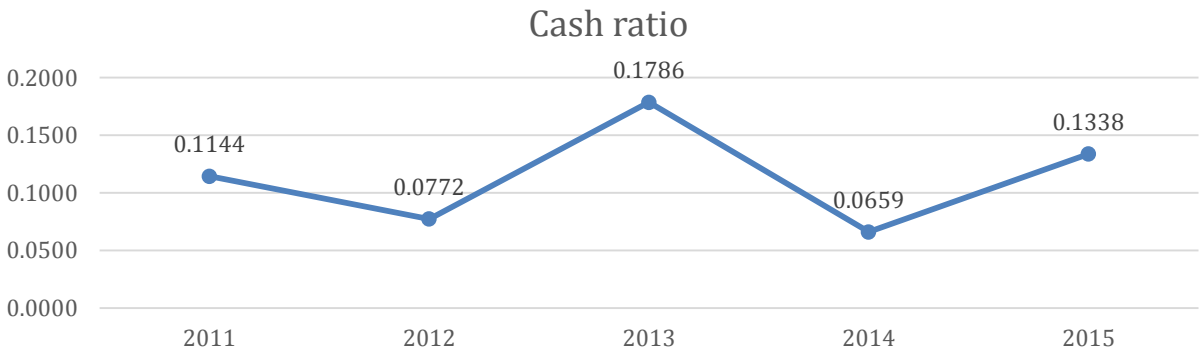
Tab. 4.7: Cash ratio of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Cash and cash equivalents	557	468	1024	482	1211
Current liabilities	4871	6060	5733	7309	9053
Cash ratio	**0.1144**	**0.0772**	**0.1786**	**0.0659**	**0.1338**

As can be seen in Tab. 4.7, cash ratio has relatively low value compared with current ratio and quick ratio. This is because the cash and cash equivalents, as the molecule, is just a small portion among the current assets. The normal level of cash ratio should over 0.2, however,

Lego Group's cash ratio is lower than this level. This reflects the company has low liquidity under the condition that does not rely on inventories and cash receivables.

Chart 4.7: Cash ratio of Lego Group.



From the Chart 4.7, we are able to clearly see the trend of cash ratio. There is a dramatic fluctuation between 2011 and 2015. In 2011, the figure is 0.1144. The umber drops to 0.0772 in 2012, then the decreasing trend reverses in 2013 when the figure reaches a peak. After that, the figure continuously goes downward in 2014 and upward in 2015. As a conclusion, Lego Group's ability to cover its liabilities by cash is not so strong.

4.3 Solvency ratio of Lego Group

In this part, I would like to use solvency ratios to measure Lego Group's ability to pay out debts. The solvency ratios which will be mentioned includes debt ratio and debt-to-equity ratio. Results of each ratio will be collected and presented in the form of table and chart.

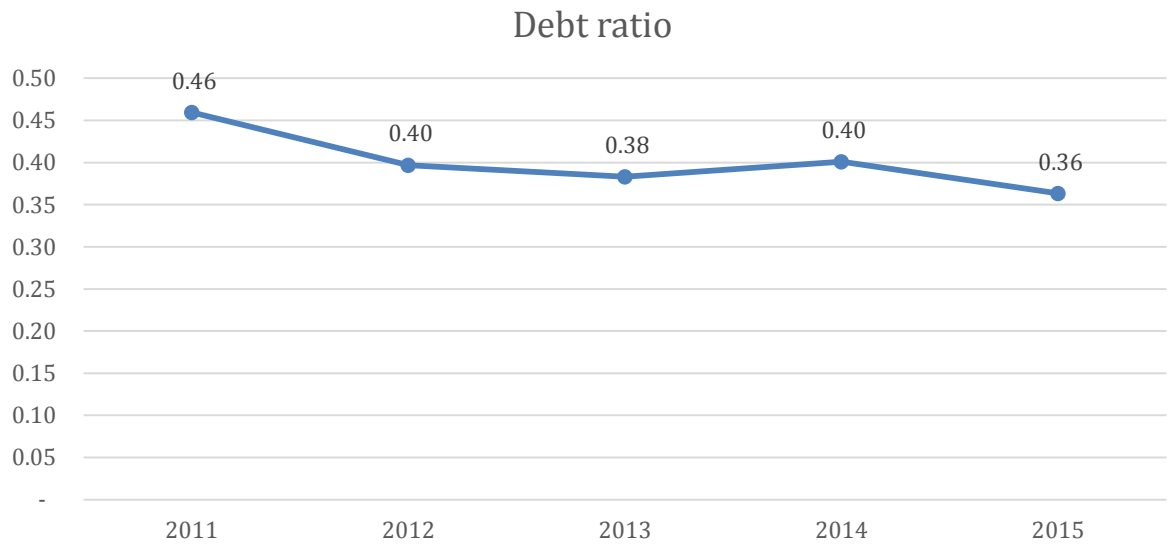
Debt ratio

Tab. 4.8 collects debt ratios of Lego Group from 2011 to 2015. Chart 4.8 shows the trend of debt ratio.

Tab. 4.8: Debt ratio of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Total liabilities	5929	6488	6877	8587	10126
Total assets	12904	16352	17952	21419	27877
Debt ratio	**0.46**	**0.40**	**0.38**	**0.40**	**0.36**

Chart 4.8: Debt ratio of Lego Group from 2011 to 2015



Debt ratio, also known as debt-to-assets ratio, is a measurement of relationship between a company's total liabilities and total assets. The ratio reflects how many proportions of total assets are financed by liabilities. The more a company financed by liabilities, the heavier its debt burden will be. As we can see from Tab. 4.8, from 2011 to 2013, the ratio is decreasing from 0.46 to 0.38. There is a slight recovery appears in 2014, the debt ratio in 2014 is flat with which in 2012. Then the ratio decreases again and touches the bottom in 2015. This caused by the high-speed increase of total assets and total equity. At the standard level, the ratio should better be lower than 0.5. Referring to this, Lego Group's debt ratio are in the normal position from 2011 to 2015. From Chart 4.8, which is clearly to see that the overall trend for debt ratio is decreasing. The low level of Lego Group's debt ratio reflects that its financial position is good, and the company has strong ability to repay its debts.

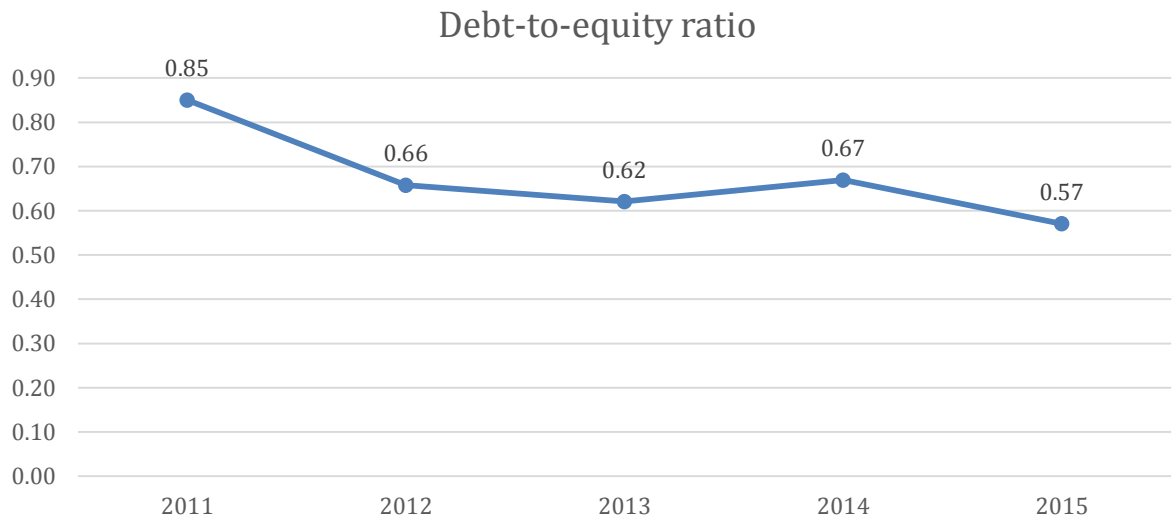
Debt-to-equity ratio

Tab. 4.9 collects debt-to-equity ratios of Lego Group from 2011 to 2015. Chart 4.9 shows the trend of debt-to-equity ratio.

Tab. 4.9: Debt-to-equity ratio of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Total liabilities	5929	6488	6877	8587	10126
Equity	6975	9864	11075	12832	17751
Debt-to-equity ratio	**0.85**	**0.66**	**0.62**	**0.67**	**0.57**

Chart 4.9: Debt-to-equity ratio of Lego Group from 2011 to 2015



Debt-to-equity ratio is quite similar to debt ratio. The ratio of debt to owner's equity is a measure of the company's financial leverage, which shows the ratio of equity to debt in the source of the firm's assets by dividing the company's long-term debt by shareholders' equity. It can be used to show whether a company's debt burden is too high when compared with the shareholders' equity. As shown in the Tab. 4.9, the debt-to-equity ratio is decreasing in the first three years, from 0.85 to 0.62. There is a slight growth in 2014. The ratio ultimately drops to 0.57 in the year 2015.

According to Chart 4.9, trend of debt-to-equity ratio is almost the same with which of debt ratio. The debt-to-equity ratio reflects the contrast between the funds provided by the creditor and the funds provided by the shareholders. A company with extremely high debt-to-equity ratio may also has high risk on repaying its loan. The lower the ratio, the stronger the firm’s ability to protect the creditor's right. The ratio should generally be less than 1.0. Though there’re some fluctuations, the debt-to-equity ratio still keeps below 1.0, meaning that the ratio remains at the normal level.

4.4 Activity ratio of Lego Group

I will use activity ratios to analyze Lego Group's performance of operation turnover activities in this chapter. The resulting figures are collected in the form of table and chart. Relevant indicators including average collection period, accounts receivable turnover, inventory turnover and total assets turnover will be explained in detail, through which we can get a sense of how efficient a company is in converting different accounts in its balance sheet into cash and equivalents.

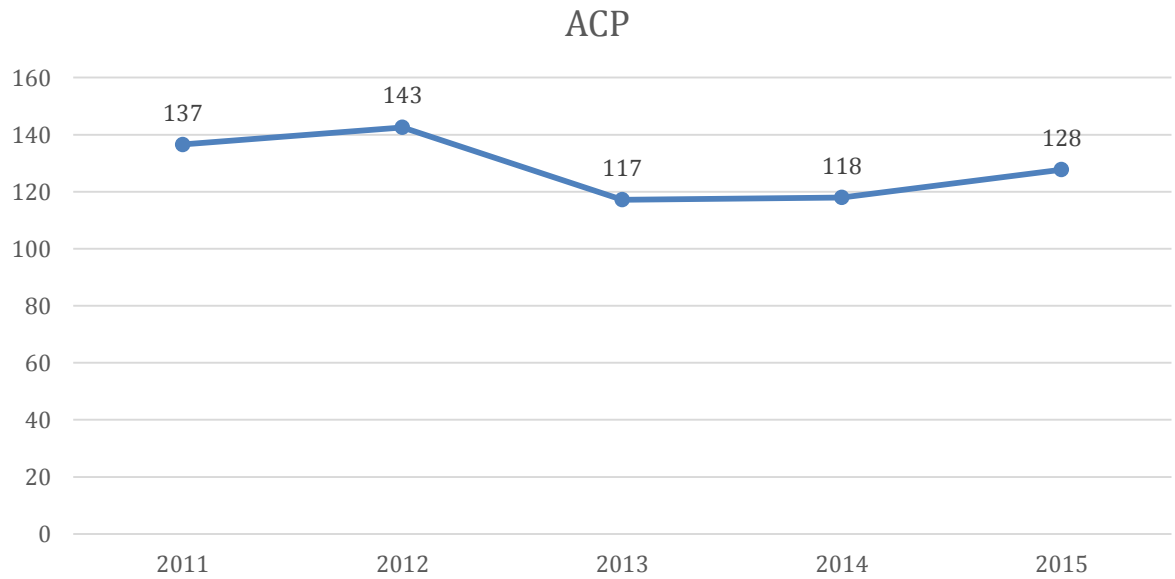
Average collection period

Tab. 4.10 collects average collection period of Lego Group from 2011 to 2015. Chart 4.10 shows the trend of average collection period.

Tab. 4.10: Average collection period of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
account receivable	7104	9270	8265	9369	12695
Revenue	18731	23405	25382	28587	35780
ACP	**137**	**143**	**117**	**118**	**128**

Chart 4.10: Average collection period of Lego Group from 2011 to 2015



The average collection period reflects how many days it will take for a company to collect an account receivable. As we can see from Tab. 4.10, the average collection period grosses to the top at 143 in 2012, then drops sharply from the peak, reaching the lowest point 117. After that drop, the average collection period begins a fairly steady climb to the point 128 in the year 2015. By maintaining the metric over time and searching for trend, we can find in

Chart 4.10 that it has gentle fluctuations but overall shows a decreasing trend. Shortened collection period is a good sign of company's getting more efficient.

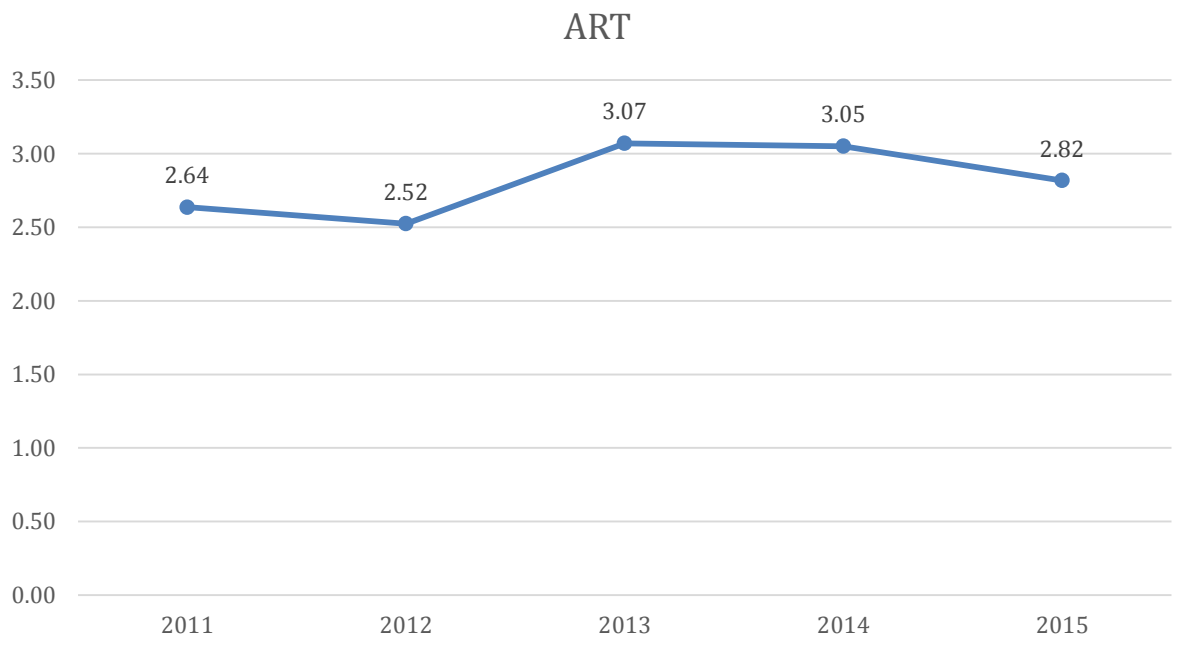
Accounts receivable turnover

Tab. 4.11 collects accounts receivable turnover of Lego Group from 2011 to 2015. Chart 4.11 shows the trend of accounts receivable turnover.

Tab. 4.11 Accounts receivable turnover of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Revenue	18731	23405	25382	28587	35780
account receivable	7104	9270	8265	9369	12695
ART	**2.64**	**2.52**	**3.07**	**3.05**	**2.82**

Chart 4.11: Accounts receivable turnover of Lego Group from 2011 to 2015



From Tab. 4.11 we can find that the account receivable turnover is in the lowest position in the year 2012. However, it reaches a peak in 2013, meaning that from 2012 to 2013, the account receivable turnover of Lego Group has a sharp increase. From 2014 to 2015, the ratio decreases at a slow rate. Chart 4.11 shows the trend of change through five years. Overall, the account receivable turnover is quite low. This ratio indicates the company's account receivable is rolled over around 3 times a year, which doesn't reach an ideal level.

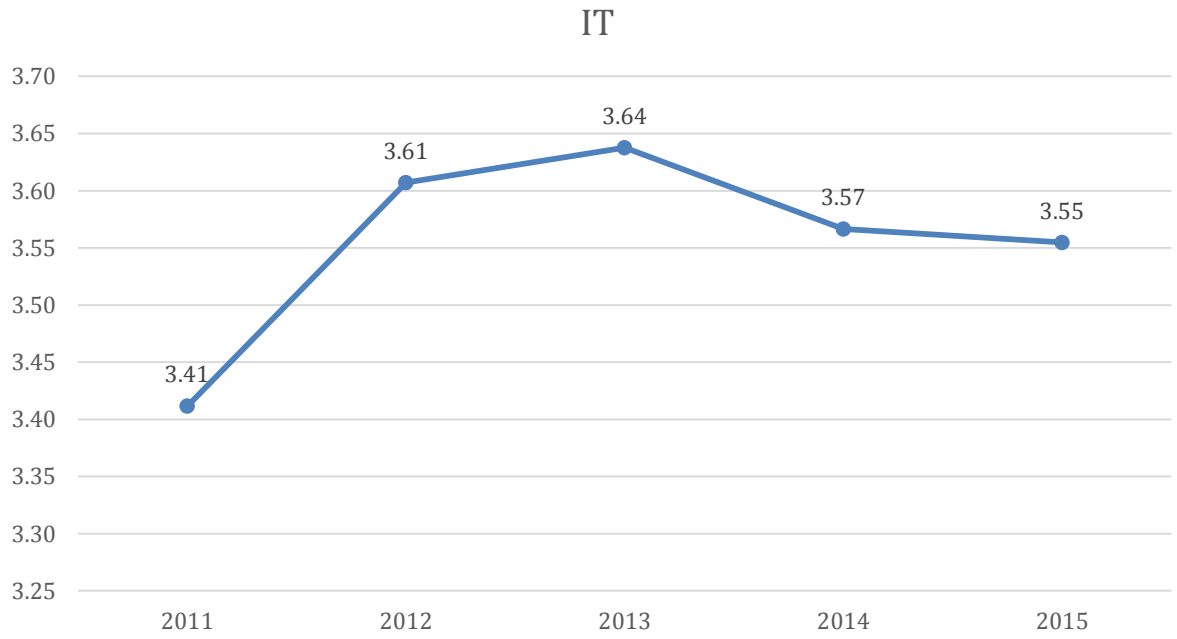
Inventory turnover

Tab. 4.12 collects accounts receivable turnover of Lego Group from 2011 to 2015. Chart 4.12 shows the trend of accounts receivable turnover.

Tab. 4.12: Inventory turnover of Lego Group from 2011 to 2015

	2011	2012	2013	2014	2015
Sales and distribution expenses	5257	6150	6635	7782	9765
inventories	1541	1705	1824	2182	2747
IT	**3.41**	**3.61**	**3.64**	**3.57**	**3.55**

Chart 4.12: Inventory turnover of Lego Group from 2011 to 2015



Inventory turnover shows the turnover speed of inventory during a year. It can be seen from Tab. 4.12 that the minimum value is 3.41 and the maximum value is 3.64. Which means from 2011 to 2015, Lego Group's average annual turnover is around 3.5 times. As it shows in Chart 4.12, the inventory turnover grows in 2011～2013, then decreases to 3.55 in 2015. This situation may be caused by the factories' expansion and upgrade of Lego Group. Company enhanced its production efficiency, producing much more inventories than before, however, it failed to improve sales ability so that inventory turnover dropped after 2013.

4.5 DuPont analysis of Lego Group

In this chapter, the analytical approach of DuPont will be applied to the Lego Group in order to find out the group's financial status. The analysis will be based on decomposition

formula (2.22), (2.23), (2.24) and (2.25). Through these formulas, the return on equity (ROE) can be broken down into five components: tax burden, interest burden, operating margin, total assets turnover and financial leverage. Added up net profit margin and return on equity, there are in all seven basic components in DuPont analysis. Values of each component in the period 2011~2015 are collected in Tab. 4.13, and values of absolute change are in Tab. 4.14.

Tab. 4.13: Values of each component from 2011 to 2015

	2011	2012	2013	2014	2015
Return on equity	0.5964	0.5690	0.5525	0.5475	0.5168
Net profit margin	0.2221	0.2398	0.2411	0.2457	0.2564
Tax burden	2.6854	2.3728	2.2918	2.2278	2.0157
Interest burden	0.9781	0.9459	0.9884	0.9788	0.9922
Operating margin	0.3025	0.3398	0.3284	0.3392	0.3422
Total assets turnover	1.4516	1.4313	1.4139	1.3347	1.2835
Financial leverage	1.8500	1.6577	1.6209	1.6692	1.5704

Tab. 4.14: Values of absolute change of each component from 2011 to 2105

	2011/2012	2012/2013	2013/2014	2014/2015
Return on equity	-0.0274	-0.0165	-0.0050	-0.0306
Net profit margin	0.0177	0.0013	0.0047	0.0107
Tax burden	-0.3127	-0.0809	-0.0640	-0.2121
Interest burden	-0.0322	0.0424	-0.0096	0.0134
Operating margin	0.0373	-0.0113	0.0108	0.0030
Total assets turnover	-0.0202	-0.0174	-0.0792	-0.0512
Financial leverage	-0.1923	-0.0368	0.0482	-0.0987

It can be seen in the Tab. 4.13, the return on ratio of Lego Group kept decreasing from 2011 to 2015. The greatest number appears in 2011, and the smallest one appears in 2015. This means the company can earn less and less money by one unit of equity. In order to find out the cause of this situation, we can use influence quantification to quantify the influence of each component. Method of gradual changes will be applied to the quantitative analysis as we show later. In this method, the basic ratio ROE is decomposed into three component ratios: net profit margin, total assets turnover and financial leverage. Results of influence quantification in terms 2011/2012, 2012/2013, 2013/2014, 2014/2015 are presented separately in Tab. 4.15, Tab. 4.16, Tab. 4.17 and Tab. 4.18.

Tab. 4.15: Results of gradual changes method in term 2011/2012

	2011	2012	2011/2012(Δa)	ΔXai	order
Net profit margin (a1)	0.2221	0.2398	0.0177	4.76%	2
Total assets turnover (a2)	1.4516	1.4313	-0.0202	-0.90%	3
Financial leverage (a3)	1.8500	1.6577	-0.1923	-6.60%	1
SUM				**-2.74%**	

$$\Delta ROEa_1 = 0.0177 \cdot 1.4516 \cdot 1.8500 = 4.76\%$$
$$\Delta ROEa_2 = 0.2398 \cdot (-0.0202) \cdot 1.8500 = -0.90\%$$
$$\Delta ROEa_3 = 0.2398 \cdot 1.4313 \cdot (-0.1923) = -6.60\%$$

Tab. 4.16: Results of gradual changes method in term 2012/2013

	2012	2013	2012/2013(Δa)	ΔXai	order
Net profit margin (a1)	0.2398	0.2411	0.0013	0.30%	3
Total assets turnover (a2)	1.4313	1.4139	-0.0174	-0.70%	2
Financial leverage (a3)	1.6577	1.6209	-0.0368	-1.25%	1
SUM				**-1.65%**	

$$\Delta ROEa_1 = 0.0013 \cdot 1.4314 \cdot 1.6577 = 0.30\%$$
$$\Delta ROEa_2 = 0.2411 \cdot (-0.0174) \cdot 1.6577 = -0.70\%$$
$$\Delta ROEa_3 = 0.2411 \cdot 1.4139 \cdot (-0.0368) = -1.25\%$$

Tab. 4.17: Results of gradual changes method in term 2013/2014

	2013	2014	2013/2014(Δa)	ΔXai	order
Net profit margin (a1)	0.2411	0.2457	0.0047	1.07%	3
Total assets turnover (a2)	1.4139	1.3347	-0.0792	-3.16%	1
Financial leverage (a3)	1.6209	1.6692	0.0482	1.58%	2
SUM				**-0.50%**	

$$\Delta ROEa_1 = 00.0047 \cdot 1.4139 \cdot 1.6209 = 1.07\%$$
$$\Delta ROEa_2 = 0.2457 \cdot (-0.0792) \cdot 1.6209 = -3.16\%$$
$$\Delta ROEa_3 = 0.2457 \cdot 1.3347 \cdot 0.00482 = 1.58\%$$

Tab. 4.18: Results of gradual changes method in term 2014/2015

	2014	2015	2014/2015(Δa)	ΔXai	order
Net profit margin (a1)	0.2457	0.2564	0.0107	2.37%	2
Total assets turnover (a2)	1.3347	1.2835	-0.0512	-2.19%	3
Financial leverage (a3)	1.6692	1.5704	-0.0987	-3.25%	1
SUM				**-3.06%**	

$$\Delta ROEa_1 = 0.0107 \cdot 1.347 \cdot 1.6692 = 2.37\%$$

$$\Delta ROEa_2 = 0.2564 \cdot (-0.0512) \cdot 1.6692 = -2.19\%$$

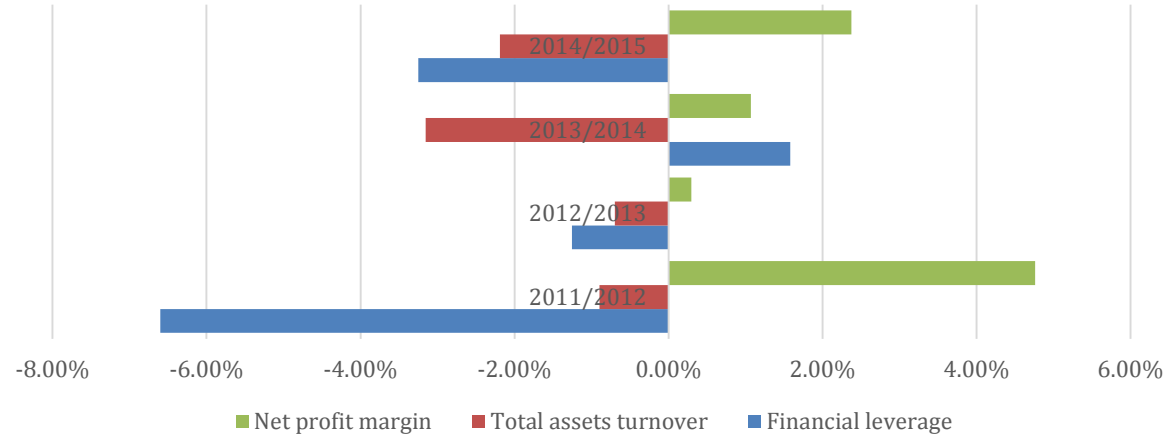
$$\Delta ROEa_3 = 0.2564 \cdot 1.2835 \cdot (-0.0987) = -3.25\%$$

To compare results in each term, Tab. 4.19 gathered them together in one table. Chart 4.13 shows the trend of gradual changes of influence.

Tab. 4.19: Results of gradual changes method from 2011 to 2015

ΔXai	2011/2012	2012/2013	2013/2014	2014/2015
Net profit margin (a1)	4.76%	0.30%	1.07%	2.37%
Total assets turnover (a2)	-0.90%	-0.70%	-3.16%	-2.19%
Financial leverage (a3)	-6.60%	-1.25%	1.58%	-3.25%
SUM	**-2.74%**	**-1.65%**	**-0.50%**	**-3.06%**

Chart. 4.13: Results of gradual changes method from 2011 to 2015



At first, we need to compare and analyze influences of three components horizontally within each tem. Then, we will make analysis vertically to compare each component's changes respectively through years.

As we can see in Tab.4.15, during term 2011/2012, the quantity of influence on ROE caused by changes of net profit margin is 4.76%, quantity of which caused by changes of total

assets turnover is -0.90%, quantity of financial leverage's influence on ROE is -6.60%. Financial leverage has the greatest impact on Lego Group's ROE, the basic ratio. This impact is a negative one, which means when financial leverage is decreasing by 19.23%, ROE of the company may be reduced by 6.60%. We can also say that, the decrease in Lego Group's return on assets during 2011 to 2012 is mainly influenced by the decrease in financial leverage ratio. It is easy to find that, net profit margin is the one which has the second strong influence on ROE. The net profit margin grows from 2011 to 2012, so that it elevates the overall level of company's ROE in this term. However, the growth of net profit margin has weaker influence on ROE than the reduction of financial leverage does, thus the sum of changes on ROE is still negative. As for the total assets turnover, it reduced by 2.02% between 2011 and 2012 and leads to a small decline of 0.90% on ROE.

From Tab. 4.16 we can know that during term 2012/2013 value of change on ROE caused by net profit margin is 0.30%, values of which caused by total assets turnover and financial leverage are -0.70% and -1.25%. It is apparent that the financial leverage is the most influential component as it accounts for a major proportion of the change on company's ROE. Because the number is negative, thus the decline on financial leverage pulls down the overall level of ROE. Differ from the last term, during 2012 to 2013, total assets turnover surpasses net profit margin and becomes the second most influential component. And the net profit margin in this term only causes a 3% growth effect.

As is shown in Tab. 4.17, in the term 2013/2014, total assets turnover causes the major change -3.16% on ROE. Because of the large negative change, though both net profit margin and financial leverage has positive influences on ROE, the sum of all components' influence quantities stays negative.

As for Tab. 4.18, the situation of term 2014/2015 is quite similar to which in term 2011/2012. The financial leverage ranks first according to its quantity of influence on ROE. Net profit margin takes the second place with the figure 2.37%. total assets turnover has the least effect on ROE. As both total assets turnover and financial leverage declines in this term, and the total amount of decline on ROE caused by these two components is larger than the amount of increase influenced by net profit margin, the value of ROE drops again in this term.

We can put all results from four terms together in Tab. 4.18 and then transfer it into the form of chart. In Chart. 4.13, it is easy to find out the overall trend over four terms. As is shown in the chart, net profit margin always on the right side of the vertical axis, meaning it always has positive figures. Total assets turnover and financial leverage are mostly on the left side of the

vertical axis, reflecting them has negative influence on ROE in the most of the times. The influence of net profit margin is quite impressive in the first term, however, it drops sharply in the second term. After that drop, the influence of net profit margin goes up term by term. It is very noticeable that the financial leverage mostly has negative effect on ROE, except in the term 2013/2014. Although has large fluctuations, on the whole, financial leverage is one of the major components that should be responsible for the continuous decline of ROE. Total assets turnover is the other component that should take responsibility. As we can see in the chart, there's always a negative number on total assets turnover. The company's total assets turnover keeps dropping and pulls down the value of ROE in an increasing proportion.

5 Conclusion

Financial analysis is a process of data integration, calculation and comparison. The integration here means collecting basic data from company's annual reports, specifically, from financial statements. Calculation refers to computing the basic data through some specific theories and formulas, then obtaining the resulting data. The last step of financial analysis is comparing the resulting data, which may present the change of company's financial condition during a specific period of time from a variety of aspects. If the result of comparison shows the company was not doing well, the investors can adjust his decision and the management can easily find out it is which link that went wrong.

The goal of this thesis is to explain what financial analysis is at first and then give a comprehensive assessment of the financial conditions of the Lego group, providing some insights for the potential investors. Content of this thesis can be divided into theoretical part and practical part. Chapter 2 belongs to the theoretical part and chapter 3, as well as chapter 4 belongs to practical part.

In chapter 2, we had a general understanding of three financial analysis methodologies. For the first method, so called financial statement analysis, we could learn the structure, contents and functions of each statement. For the second method, common-size analysis, we introduced both vertical common-size analysis and horizontal common-size analysis. At last, we described the financial ratio analysis detailedly.

In chapter 3, we had a basic description of the Lego group. Information about the company's history, management structure, recent activities, competition and risk can be found in this chapter. After introducing the fundamental financial characteristics about the target company, we initially analyzed the company by using two common-size analysis methods. According to the analysis from Chapter 3, reasons of the development of the company should be attributed to the following points: The most emphasized point is the increasing of production capacity. It is quite noticeable in the annual reports that the company had expanded numbers of factories during the period. This caused the steady increase of inventory and led to the growth of total revenues. The growth amount of research and development costs is another key success factor. The company focused on its core products and values by launching high value-added products, thus gained the brand loyalty from consumers.

In Chapter 4, we use methods of financial ratio analysis, DuPont analysis and influence quantification to find out the Lego Group had smooth development from 2011 to 2015. The

most noticeable thing is that referring to company's financial ratios, it had extremely large proportion of equity, and this caused great effects on company's return on equity.

Through a variety of financial analysis methods mentioned in the previous chapter, the financial condition of the Lego Group has been depicted. Profitability of the Lego Group was growing stronger in recent years, especially shown from the chart of net profit margin. This pleasant trend may thank to a series of upgrade activities. Compared with other company, the Lego Group has really high level of return on equity, and that's the reason why the company kept attracting increasing amount of equity during these years. The company's liquidity of the assets remained on a satisfactory level. Though there were some slightly drops, on a macroscopic point of view, the trend was quite stable. Moreover, we can see from the solvency ratios that the company had great ability on repaying its debts. As a weakness, the company had poor vitality on turnover, time period for the company to collect its account receivable is rather long. And it had poor performance on inventory turnover as well. From an overall perspective, during the past five years, the Lego Group had an excellent momentum of development.

The most remarkable result of the analysis above is that the company is in a healthy financial condition, and can be expected for an even better future. As a matter of fact, the company was "on a burning platform, losing money with negative cash flow and a real risk of debt default which could lead to a break-up of the company," reviewed by Knudstrop, the present CEO of the Lego Group, referring to the company's financial condition in 2003. However, in 2011, the company gained 18731 million DKK of revenues and net profits of 4160 million DKK. Four years after, till the year 2015, the company achieved 35780 million DKK of revenues and net profits of 9174 million DKK. Thanks to the incredible growth, the company had replaced Hasbro to become the largest toy company in the world.

As a prediction for the future, the Lego Group may face cruel challenges not only from the toy industry but also from video games and mobile games. Though in recent years the company achieved success in movies and video games, it should have a clear vision for its product structure and mainly focus on innovation of core products.

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List of Abbreviations

A - Asset

ACP - Average collection period

ART - Account receivable turnover

EAT - Earning after taxes

EBIT - Earning before interest and taxes

EBT - Earning before taxes

EPS - Earning per share

IT - Inventory turnover

NPM - Net profit margin

OP - Operating profit

OPM - Operating profit margin

P/E - Price to equity ratio

REV - Revenue

ROA - Return on assets

ROE - Return on equity

TAT - Total assets turnover

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Declaration of Utilisation of Results from a Bachelor Thesis

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Ostrava dated 05.05.2017

王楠 Nan Wang

Student's name and surname

List of Annexes

Annexes

Annex 1: Balance sheet of Lego Group (million DKK)

	2011	2012	2013	2014	2015
Current assets	9202	11443	11113	12033	16653
Inventories	1541	1705	1824	2182	2747
Trade receivables	3845	4950	4870	5891	6410
Other receivables	603	630	946	733	920
Prepayment	462	226	74	99	179
Current tax receivables	244	22	65	48	254
Receivables from related parties	1950	3442	2310	2598	4932
Cash and cash equivalents	557	468	1024	482	1211
Non-current assets	3702	4909	6839	9386	11224
Intangible assets	190	209	260	271	332
Property, plant and equipment	3395	4566	6290	8456	10301
Other non-current assets	117	134	289	659	591
Total Assets	12904	16352	17952	21419	27877
Equity	6975	9864	11075	12832	17751
Total non-current liabilities	1058	428	1144	1278	1073
Total current liabilities	4871	6060	5733	7309	9053
Liabilities	5929	6488	6877	8587	10126
Total equity and liabilities	12904	16352	17952	21419	27877

Annex 2: Income statement of Lego Group (million DKK)

	2011	2012	2013	2014	2015
Revenue	18731	23405	25382	28587	35780
Production costs	5519	6758	7598	8071	9814
Gross profit	13212	16647	17784	20507	25966
Sales and distribution expenses	5257	6150	6635	7782	9765
Administrative expenses	1104	1326	1359	1444	2239
Other operating expenses	1185	1219	1454	1584	1718
Operating profit	5666	7952	8336	9697	12244
Financial income	34	19	13	12	12
Financial expenses	158	449	110	218	108
Profit before income tax	5542	7522	8239	9491	12148
Tax on profit	1382	1909	2120	2466	2974
Net profit	4160	5613	6119	7025	9174